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ERRATA NOTICE

EOS Core System (ECS) Project Contract No. NAS5-60000

March 9, 1998

Document No.: 814-RD-008-002

Title: Release B.0 Toolkit 5.2 VDD for the ECS Project - Version 1.00

Certain pages in the subject document have been revised. They have been replaced in this file as follows:

Removed	Inserted
v through viii	v through viii

If you have any questions, please contact our Data Management Office at (301) 925-0510.

HUGHES INFORMATION TECHNOLOGY SYSTEMS

ADDENDUM NOTICE

EOS Core System (ECS) Project Contract No. NAS5-60000

March 9, 1998

Document No.: 814-RD-008-002

Title: Release B.0 Toolkit 5.2 VDD for the ECS Project - Version 1.00

The subject document has been revised. The following pages have been added to this file:

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7-1 through 7-4

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ERRATA NOTICE

EOS Core System (ECS) Project Contract No. NAS5-60000

January 22, 1998

Document No.: 814-RD-008-002

Title: Release B.0 Toolkit 5.2 VDD for the ECS Project - Version 1.00

Certain pages in the subject document have been revised. They have been replaced in this file as follows:

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ADDENDUM NOTICE

EOS Core System (ECS) Project Contract No. NAS5-60000

January 22, 1998

Document No.: 814-RD-008-002

Title: Release B.0 Toolkit 5.2 VDD for the ECS Project - Version 1.00

The subject document has been revised. The following pages have been added to this file:

Inserted

6-1 through 6-8

If you have any questions, please contact our Data Management Office at (301) 925-0510.

814-RD-008-002

EOSDIS Core System Project

Release B.0 Toolkit 5.2.1 Version Description Document (VDD) for the ECS Project

Version 1.00

October 1997

Hughes Information Technology Systems
Upper Marlboro, Maryland

Release B.0 Toolkit 5.2.1 Version Description Document (VDD) for the ECS Project

Version 1.00

October 1997

Prepared Under Contract NAS5-60000

RESPONSIBLE ENGINEER

LaVerne Jackson 10/31/97

LaVerne Jackson, Staff Engineer Date
EOSDIS Core System Project

SUBMITTED BY

Michael F. Demcsak 10/31/97

Michael F. Demcsak, Director of Development Date
EOSDIS Core System Project

Hughes Information Technology Systems
Upper Marlboro, Maryland

814-RD-008-002

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Preface

This document accompanies the delivery of Release B.0 Toolkit 5.2.1, Version 1.00. It is not a formal deliverable and does not require Government approval; however, it has been placed under configuration control by the EOSDIS Core System (ECS) Science Data Processing Segment. Changes to this document shall be made by document change notice (DCN) or by complete revision.

This Toolkit version is directed at Earth Observing System (EOS) instrument data providers who will deliver code to the ECS Release B.0 Distributed Active Archive Centers (DAACs). It is an engineering upgrade to Toolkit 5.2, delivered in April 1997. The user calling interface of the current version is the same as that of Toolkit 5.2.

Any questions regarding distribution should be addressed to:

Data Management Office
The ECS Project Office
Hughes Information Technology Systems
1616 McCormick Dr.
Upper Marlboro, MD 20774-5372

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Change Information Page

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C-1 and C-2	Original
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814-RD-008-001	Original	April 1997	97-0655
814-RD-008-002	Original	October 1997	97-1459
814-RD-008-002	Addendum A	January 1998	98-0005
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Abbreviations and Acronyms

1. Introduction

1.1 Identification of Document

This document is a Version Description Document (VDD) prepared using NASA-STD-2100-91 as a guide. It is submitted as required for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS), contract number NAS5-60000.

1.2 Scope of Document

This VDD specifies the delivery contents of the ECS Release B.0 Toolkit 5.2.1 Version 1.00 software and accompanying documentation.

1.3 Purpose and Objectives of Document

The purpose of this VDD is to describe the contents of the delivery of Release B.0 Toolkit 5.2.1 Version 1.00. The document briefly describes all tools that incorporate the delivery, provides an inventory of the delivery, lists unresolved problems, and addresses special issues such as special operating instructions, system limitations, and disclaimer notices for public domain software used in the library.

1.4 Document Status and Schedule

This Version Description Document for Release B.0 Toolkit 5.2.1 Version 1.00 is submitted as a final document. Any changes to Release B.0 Toolkit 5.2.1 Version 1.00 that require a subsequent version to be released will be described in a new Version Description Document.

1.5 Document Organization

The format and contents of this document comply with NASA-DID-P500 and NASA-DID-999 as defined in NASA-STD-2100-91.

- Introduction — Introduces the VDD scope, purpose, objectives, status, schedule and document organization.
- Related Documentation — Provides a bibliography of reference documents for the VDD organized by parent and binding subsections.
- Product Description — Describes the general capabilities and product contents.
- Inventory — Tar file listings for Release B.0 Toolkit 5.2.1 source and test drivers, documentation, and archive tape.

- Non-conformance Status — Discusses known problems with Release B.0 Toolkit 5.2.1 Version 1.00 and lists Non-conformance Reports with open status.
- Appendices — Contain supplemental information such as: Build/installation instructions, special operating instructions, system limitations, user feedback procedures, public software disclaimer notices, and the test baseline configuration.

2. Related Documentation

2.1 Parent Documents

The following document is the parent from which this document's scope and content derive:

423-42-01	EOSDIS Core System Statement of Work- CN10

2.2 Applicable Documents

The following documents are directly applicable to this plan to the extent referenced herein. In the event of conflict between any of these documents and this plan, the plan shall take precedence.

170-TP-005-004	HDF-EOS Library Users Guide for the ECS Project--Volume 1: Overview and Examples
170-TP-006-003	HDF-EOS Library Users Guide for the ECS Project--Volume 2: Function Reference Guide
333-CD-004-002	Release B.0 Toolkit 5.2.1 Users Guide for the ECS Project
814-RD-009-002	HDF-EOS 2.1 Version Description Document (VDD) for the ECS Project
NASA-STD-2100-91	NASA Software Documentation Standard, Software Engineering Program

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3. Product Description

This section describes the general capabilities of Release B.0 Toolkit 5.2.1, Version 1.00, and the tools and test drivers provided.

3.1 Product Description and General Capabilities

The Release B.0 Toolkit 5.2.1 will be used by data production software developers and scientists to develop code at their Science Computing Facilities and later encapsulate that code in Distributed Active Archive Center computing facilities. The purpose of the Toolkit is to provide an interface between instrument processing software and the production system environment. It sets up the context and environment for the execution of production processes and the transfer of data sets and information to those processes. This interface will be implemented in the SCF development environment along with additional utilities that will be used to emulate production environment services.

An important goal of the Toolkit is to facilitate the smooth transition and integration of code into the DAAC by abstracting out science process dependencies on external system architecture. Another goal is the provision of an interface into which application modules can be incorporated. This may include, for example, geo-location packages, other specialized routines that can be Commercial-Off-The-Shelf, freeware or user supplied modules.

See Appendices A and F for further description of the installation scripts and the test baseline configuration.

The Toolkit Utilities and Ancillary data files are not part of the tool set but are part of this delivery. The Toolkit Utilities are ancillary data creation and file management utilities. They are provided to enhance the SCF development environment in lieu of an operational production environment. Additionally, the Ancillary/Auxiliary (AA) data access tools are provided. It is not necessary to install these files if users do not plan to use these tools.

3.2 Release B.0 Toolkit 5.2.1 Routine Listing

The following Release B.0 Toolkit 5.2.1 Routine listing provides a description of the tools.

Tool Name	Description
pccheck	Use to verify that a process control file (PCF) is syntactically correct
PGS_AA_2Dgeo	Allows access to 2 dimensional data sets e.g., sea–ice
PGS_AA_2DRead	Allows access to 2 dimensional data sets e.g., sea–ice
PGS_AA_3Dgeo	Allows access to 3 dimensional data sets, e.g., atmospheric humidity
PGS_AA_3DRead	Allows access to 3 dimensional data sets, e.g., atmospheric model
PGS_AA_dcw	Returns the surface types (land, sea, coast), and nation–state to be determined (TBD) for a user defined set of locations

Tool Name	Description (continued)
PGS_AA_dem	Locates heights from specified digital elevation model (DEM) corresponding to each of the locations specified
PGS_AA_PeVA_integer	Searches in a specified file for the parameter and returns the value of that parameter which is an integer
PGS_AA_PeVA_real	Searches in a specified file for the parameter and returns the value of that parameter which is a real(float)
PGS_AA_PeVA_string	Searches in a specified file for the parameter and returns the value of that parameter which is a text string
PGS_CBP_body_inFOV	Given instrument parameters, returns a flag to indicate whether any of the user–selected major celestial bodies (sun, moon, etc.) are in the instrument field–of–view.
PGS_CBP_BrightStar_positions*	Returns the position of all stars of magnitude > input magnitude, or the position of the stars designated by inputting star id's and setting the flag 'input_flag'.
PGS_CBP_Earth_CB_Vector	Computes the Earth centered inertial (ECI) frame vector from the Earth to the sun, moon, or planets at a given time, or range of time(s)
PGS_CBP_Sat_CB_Vector	Computes the ECI vector from the spacecraft to the sun, moon, or planets at a given time or range of time(s)
PGS_CBP_SolarTimeCoords	Computes local solar time, and right ascension and declination of the sun, for a given standard time and position on the surface of the Earth
PGS_CSC_DayNight	Determines whether a given point on the Earth is in day, night or twilight, at a given time
PGS_CSC_Earthpt_FixedFOV	For a fixed field of view obtains the Coordinated Universal Time (UTC) time interval and the starting time that an Earth point is within the field-of-view, within a specified time window
PGS_CSC_Earthpt_FOV	For a field of view defined by a table of coordinates (accessed externally), and a known motion of the boresight vector as a function of time, obtains the Coordinated Universal Time (UTC) time interval and the starting time that an Earth point is within the field–of–view, within a specified time window
PGS_CSC_ECItoECR	Frame change tool
PGS_CSC_ECItoORB	Transforms a vector in the ECI Coordinate system to a vector in the Orbital Coordinate System
PGS_CSC_ECItoSC	Frame change tool
PGS_CSC_ECRtoECI	Frame change tool
PGS_CSC_ECRtoGEO	Frame change tool
PGS_CSC_GEOtoECR	Frame change tool
PGS_CSC_GetFOV_Pixel	Computes the projection of (geolocates) the instrument field–of–view on the Earth, optionally, geolocates the center of each pixel in the footprint
PGS_CSC_GreenwichHour	Returns the Greenwich Hour Angle of the vernal equinox, which is equal to Greenwich sidereal time, in the ECI frame, at a given time.
PGS_CSC_J2000toTOD	Transform from ECI J2000 to ECI True Date
PGS_CSC_nutate2000	Transforms a vector under nutation from Celestial Coordinates of date in Barycentric Dynamical Time (TDB) to J2000 coordinates or from J2000 coordinates to Celestial Coordinates of date
PGS_CSC_ORBtoECI	Transforms vector in orbital coordinate system to vector in ECI coordinate system

Tool Name	Description (continued)
PGS_CSC_ORBtoSC	Frame change tool
PGS_CSC_precs2000	Precesses a vector from Celestial Coordinates of date in Barycentric Dynamical Time (TDB) to J2000 coordinates or from J2000 coordinates to Celestial Coordinates of date in Barycentric Dynamical Time (TDB)
PGS_CSC_SCtoECI	Frame change tool
PGS_CSC_SCtoORB	Frame change tool
PGS_CSC_SpaceRefract	Estimate the refraction for a ray incident from space or a line of sight from space to the Earth's surface, based on the unrefracted zenith angle
PGS_CSC_SubSatPoint	Returns the position and velocity vector of the sub–satellite point ("pierce point"), or nadir of the satellite on the Earth's surface. Optionally returns the nadir vector also.
PGS_CSC_TODtoJ2000	Transform from ECI True of Date to ECI J2000 Coordinates
PGS_CSC_wahr2	Calculates nutation angles
PGS_CSC_ZenithAzimuth	Returns zenith and azimuth angles of spacecraft
PGS_CUC_Cons	Accesses constant values from a predetermined input file
PGS_CUC_Conv	Accesses conversion slope and intercept values, needed to convert between units
PGS_DEM_Close	Close a DEM dataset
PGS_DEM_DataPresent	Check for Valid DEM Data Point
PGS_DEM_GetMetadata	Extract Metadata from the DEM
PGS_DEM_GetPoint	Return Data at Specified DEM Point
PGS_DEM_GetQualityData	ACCESS DEM Quality Data
PGS_DEM_GetRegion	Return Data from a Specified Region of the DEM
PGS_DEM_GetSize	Return Size of Specified DEM Region
PGS_DEM_Open	Open a DEM dataset
PGS_DEM_SortModels	Check for Data in a Specified Region of the DEM
PGS_EPH_EphemAttit	Provides access to spacecraft ephemeris and attitude data for a given time range, interpolates the state vectors and spacecraft attitude to a specified time
PGS_EPH_GetEphMet	Returns the metadata associated with spacecraft ephemeris files
PGS_GCT_Init	Performs Geo–coordinate transformation initialization for the given projection with the given parameters
PGS_GCT_Proj	Performs Geo–coordinate transformations for the given projection in the forward and inverse directions
PGS_IO_Gen_Close	Close non–HDF file
PGS_IO_Gen_CloseF	Close non–HDF file FORTRAN
PGS_IO_Gen_Open	Open non–HDF file
PGS_IO_Gen_OpenF	Open non–HDF file FORTRAN 77 & 90
PGS_IO_Gen_Temp_Delete	Permanently delete a temporary file
PGS_IO_Gen_Temp_Open	Open temporary file
PGS_IO_Gen_Temp_OpenF	Open temporary file FORTRAN 77 & 90
PGS_IO_L0_Close	Closes a virtual data set that was opened with a call to PGS_IO_L0_Open.
PGS_IO_L0_File_Sim	Creates a file of simulated Level 0 data
PGS_IO_L0_GetHeader	Gets the header and footer data for the currently open physical file
PGS_IO_L0_GetPacket	Gets a single packet from the specified Level 0 Virtual Data Set
PGS_IO_L0_Open	Open a Virtual Level 0 Data Set

Tool Name	Description (continued)
PGS_IO_L0_SetStart	Sets the specified open virtual data set so that the next call to PGS_IO_L0_GetPacket will read the first packet at or after the specified time
PGS_IO_L0_SetStartCntPkts	Sets the specified open virtual data set so that the next call to PGS_IO_L0_GetPacket will read the first packet at or after the specified time and tracks the number of packets skipped in the current file.
PGS_MEM_Calloc	Allocates an array of arbitrarily sized elements, initializing them to zero, in memory
PGS_MEM_Free	Deallocates memory that was previously allocated
PGS_MEM_FreeAll	Deallocates all memory that was previously allocated within a process
PGS_MEM_Malloc	Allocates an arbitrary number of bytes in memory
PGS_MEM_Realloc	Reallocates the number of bytes requested
PGS_MEM_ShmAttach	Used by an executable to attach to an existing shared memory segment
PGS_MEM_ShmCreate	Used to create a shared memory segment
PGS_MEM_ShmDetach	Used to detach a shared memory segment from a process that attached it
PGS_MEM_ShmRead	FORTRAN Read from Shared Memory
PGS_MEM_ShmWrite	FORTRAN Write to Shared Memory
PGS_MEM_Zero	Initializes a memory block or structure to zero
PGS_MET_GetConfigData	Enables the user to get the values of Config data parameters held in the PC table
PGS_MET_GetPCAttr	Retrieves parameter values from the PC table which are either located as HDF attributes on product files or in separate ASCII files
PGS_MET_GetSetAttr	Enables the user to get the values of metadata parameters which are already set by the initialization procedure
PGS_MET_Init	Initializes a metadata configuration file (MCF)
PGS_MET_Remove	Contains PGS_MET_Remove() which frees the memory held by the metadata configuration file (MCF) and data dictionary object description language (ODL) representations
PGS_MET_SetAttr	Enables the user to set the value of metadata parameters
PGS_MET_Write	Enables the user to write different groups of metadata to separate HDF attributes
PGS_PC_GenUniqueID	Used to generate a unique product identifier. May be attached to file metadata to facilitate tracking of production output
PGS_PC_GetConfigData	May be used to access run–time parameters in the PGE
PGS_PC_GetConfigDataCom	May be used to access run–time parameters at the shell level
PGS_PC_GetFileAttr	Used to retrieve the attribute string that contains the metadata for a Product file
PGS_PC_GetFileAttrCom	Used at the shell level to retrieve an attribute "stream" that contains the metadata for a Product file
PGS_PC_GetFileByAttr	Used to retrieve the specific instance of a product file that satisfies the search criteria, defined by a user–supplied method, applied to the metadata of each product file instance
PGS_PC_GetFileSize	Get the size of a file in the PCF.
PGS_PC_GetFileSizeCom	Get the size of a file in the PCF at the shell level.
PGS_PC_GetNumberOfFiles	May be used to query the number of file instances that are associated with a particular product file

Tool Name	Description (continued)
PGS_PC_GetNumberOfFilesCom	May be used, at the shell level, to query the number of file instances that are associated with a particular product file
PGS_PC_GetReference	Used to obtain a physical file pathname from a logical identifier for a particular Product file
PGS_PC_GetReferenceCom	Used at the shell level to obtain a physical file pathname from a logical identifier for a particular Product file
PGS_PC_GetReferenceType	Tool may be used to ascertain the type of file reference which is associated with a logical identifier within the science software
PGS_PC_GetTempReferenceCom	Used at the shell level to obtain a physical file pathname from a logical identifier for a particular Temporary, or Intermediate file
PGS_PC_GetUniversalRef	Used to obtain a universal reference from a logical identifier
PGS_PC_InitCom	Used, prior to PGE execution, to establish a working environment for the SDP Toolkit
PGS_PC_Shell.sh	Provides an integrated environment for the SDP Toolkit and a PGE
PGS_PC_TempDeleteCom	Used at the shell level to delete the Temporary file currently associated with a particular logical identifier
PGS_PC_TermCom	Used, following PGE termination, to cleanup the resources used by the SDP Toolkit
PGS_SMF_Begin	Signal SMF that function has started
PGS_SMF_CreateMsgTag	May be used to generate a unique message identifier
PGS_SMF_End	Signal SMF that function has ended
PGS_SMF_GenerateStatusReport	Used to add user–defined status reports to the Status Report Log file
PGS_SMF_GetActionByCode	Provide the means to retrieve an action string associated with a specific mnemonic code
PGS_SMF_GetInstrName	Used to retrieve the instrument name from a given error/status code
PGS_SMF_GetMsg	Provide the means to retrieve a previously set message from the static buffer PGS_SMF__Set....
PGS_SMF_GetMsgByCode	Provide the means to retrieve the message string corresponding to a specific mnemonic code
PGS_SMF_GetToolkitVersion	This function returns a string describing the current version of the Toolkit.
PGS_SMF_SendRuntimeData	Provide a means for the user to transmit a package of runtime data to the SCF in the event of an unhandled system exception
PGS_SMF_SetArithmeticTrap*	Used to specify a signal handling function to perform in the event that an error arithmetic operation has occurred.
PGS_SMF_SetDynamicMsg	Provide the means to set a user–defined error/status message in response to the outcome of some segment of processing.
PGS_SMF_SetHDFMsg*	Provide the means to retain the HDF–EOS error message as a result of an HDF–EOS error.
PGS_SMF_SetStaticMsg	Provide the means to set a predefined error/status message in response to the outcome of some segment of processing.
PGS_SMF_SetUNIXMsg	Provides the means to retain UNIX error messages for later retrieval
PGS_SMF_TestErrorLevel	Will return a Boolean value indicating whether or not the returned code has status level 'E'
PGS_SMF_TestFatalLevel	Will return a Boolean value indicating whether or not the returned code has status level 'F'
PGS_SMF_TestMessageLevel	Will return a Boolean value indicating whether or not the returned code has status level 'M'
PGS_SMF_TestNoticeLevel	Will return a Boolean value indicating whether or not the returned code has status level 'N'

Tool Name	Description (continued)
PGS_SMF_TestStatusLevel	Will return a defined status level constant
PGS_SMF_TestSuccessLevel	Will return a Boolean value indicating whether or not the returned code has status level 'S'
PGS_SMF_TestUserInfoLevel	Will return a Boolean value indicating whether or not the returned code has status level 'U'
PGS_SMF_TestWarningLevel	Will return a Boolean value indicating whether or not the returned code has status level 'W'
PGS_TD_ASCIItime_AtoB	Converts binary time values to ASCII Code B time values of the form year_month_day_time_of_day in the Consultative Committee on space Data Systems (CCSDS) format
PGS_TD_ASCIItime_BtoA	Converts binary time values to ASCII Code A time values of the form year_month_day_time_of_day in the CCSDS format
PGS_TD_GPStoUTC	Converts to Coordinated Universal Time (UTC) time value from Global Positioning System (GPS) time by converting to internal time, adding the GPS_minus_UTC_leapseconds from the leapseconds file, and converting to GPS format following CCSDS ASCII standard A
PGS_TD_LeapSec	Find Leap second value
PGS_TD_SCtime_to_UTC	Converts spacecraft clock time to UTC for EOS platforms or for foreign spacecraft
PGS_TD_TAItoGAST	Converts International Atomic Time (TAI) (toolkit internal time) to Greenwich apparent sidereal time (GAST) expressed as the hour angle of the true vernal equinox of date at the Greenwich meridian (in radians)
PGS_TD_TAIjdtoTAI	Converts TAI Julian date to time in TAI seconds since 12 AM UTC 1-1-1993
PGS_TD_TAItoTAIjd	Converts time in TAI seconds since 12 AM UTC 1-1-1993 to TAI Julian date
PGS_TD_TAItoUTC	Converts TAI time value to UTC time
PGS_TD_TimeInterval	Computes the elapsed TAI time in seconds between any two epochs after January 1, 1958
PGS_TD_UTCtoGPS	Converts UTC time value to GPS time by converting to internal time, adding the GPS_minus_UTC_leapseconds from the leapseconds file, and converting to GPS format following CCSDS ASCII standard A
PGS_TD_UTCtoTAI	Converts UTC time to TAI time by first converting UTC to internal time and then adding the TAI_minus_UTC_leapseconds from the leapseconds file
PGS_TD_UTCtoTDBjed	UTC to Barycentric Dynamical Time (TDB) time conversion
PGS_TD_UTCtoTDTjed	UTC to Terrestrial Dynamical Time (TDT) time conversion
PGS_TD_UTCtoUT1	Converts UTC to UT1 time
PGS_TD_UTCtoUT1jd	Converts UTC time in CCSDS ASCII Time Code to UT1 time as a Julian date
PGS_TD_UTCjdtoUTC	Converts UTC as a Julian date to UTC in CCSDS ASCII Time Code A format
PGS_TD_UTCtoUTCjd	Converts UTC in CCSDS ASCII Time Code A format to UTC as a Julian date
PGS_TD_UTC_to_SCtime	Converts UTC to Spacecraft clock time for EOS standard of Foreign Spacecraft
smfcompile	Provides means to store messages in files that are accessed at runtime to get the message text.

* Undelivered at this time; please see the Release B.0 SCF Toolkit Users Guide.

3.3 Release B.0 Toolkit 5.2.1 Test Tools and Drivers

Included in the delivery of Release B.0 Toolkit 5.2.1 Version 1.00 are sample drivers for each toolkit routine or set of routines. These drivers are provided "as is" as an aid to the Toolkit Users. These drivers have been used during the integration and test process and may be useful to verify installation, debug errors encountered while using the toolkit, or as sample routines for calling the toolkit functions. They are provided as a service to the toolkit users and will not be maintained or updated.

The drivers are contained in a separate tar file named SDPTK5.2.1v1.00_TestDrivers.tar.Z. The file contains a driver for each tool or set of related tools (such as Generic I/O), a "Readme file" describing how to compile and use the drivers for each tool group, a makefile for each tool group, sample output files and sample input files for the drivers. In addition to the "Readme file", the drivers and sample files are well commented to aid the user in correct usage. This is the only documentation that will be delivered for the drivers. To access the sample drivers, untar the file, read the desired readme, set the environment, make the desired driver and run. The files in the sample driver directory (test_drivers) follow the following naming convention:

1) Driver Name:

   C Driver: tool_name_Driver_c.c

   Fortran Driver: tool_name_Driver_f.f

   (Example: PGS_CBP_Earth_CB_Vector_Driver_c.c)

   or for a tool group with one driver: tool_group_name_Driver_c.c and tool_group_name_Driver_f.f (ex: PGS_GCT_Driver_f.f)

   The _c and _f in the name prevents name conflicts between the C and FORTRAN in the executables.

2) README file: README.<tool group name>.

   The README file explains how to use drivers. The README file also contains all the environment variables needed to be set to run the driver, with some examples of values for those variables.

   The make instruction assumes the Toolkit Libraries are available and the Toolkit environmental variable have been set, for example:

   $PGSLIB points to the toolkit library

   $PGSINC points to the include files

3) Sample output: <Driver_Name>.out_sample

4) Sample input file: Driver_Name.in

The drivers have been implemented to be used either interactively (requiring user inputs) or driven by an input file. All of the tools can operate in both modes. The sample output was obtained by running the tool from the provided input file. Repeating this process and comparing the output with the sample file may be useful in validating proper installation or porting of the

toolkit. Using the interactive capabilities or modifying the input file to fit the values encountered during your integration may help to debug errors encountered while using the toolkit.

3.4 Release B.0 Toolkit 5.2.1 Hierarchical Data Format

The Hierarchical Data Format (HDF) has been selected by the EOSDIS Project as the format of choice for standard product distribution. HDF is a *disk format* and *subroutine library* for storage of most kinds of scientific data. As a *disk format*, HDF files consist of a directory and an unordered set of binary data objects. Each directory entry describes the location, the type, and the size of these binary objects.

The *HDF subroutine library* is designed to be easy for C and Fortran programmers to use. The HDF library consists of callable routines, each of which belongs to a particular *interface*. Each interface within these layers address a particular HDF function or a particular HDF data structure, such as arrays, tables, and annotations.

3.5 Release B.0 SCF Toolkit Users Guide

The purpose of the ***Release B.0 SCF Toolkit Users Guide*** is to provide EOS instrument data processing software developers and scientists with knowledge of Release B.0 Toolkit 5.2.1 functionality, and to provide a listing of routine calling sequences, detailed descriptions, and examples of usage. This document accompanies the software delivery described in Sections 3.2, 3.3, and 3.4 above.

4. Product Inventory

4.1 Release B Toolkit 5.2.1 Tar File Listing

A listing of the tar file "SDPTK5.2.1v1.00.tar.Z" follows:

```
TOOLKIT/
TOOLKIT/bin/
TOOLKIT/bin/tmp/
TOOLKIT/bin/tmp/jackets.c.unicos
TOOLKIT/bin/tmp/pgs-dev-env.csh.tmp
TOOLKIT/bin/tmp/pgs-dev-env.ksh.tmp
TOOLKIT/bin/tmp/pgs-env.csh.tmp
TOOLKIT/bin/tmp/pgs-env.ksh.tmp
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TOOLKIT/src/DEM/PGS_DEM_AccessFile.c
TOOLKIT/src/DEM/PGS_DEM_GetQualityData.c
TOOLKIT/src/DEM/PGS_DEM_GetBoundingPnts.c
TOOLKIT/src/DEM/PGS_DEM_Interpolate.c
TOOLKIT/src/DEM/PGS_DEM_RecursiveSearchBil.c
TOOLKIT/test/

4.2 Test Tools Tar File Listing

The Release B.0 Toolkit 5.2.1 test drivers tar file listing “SDPTK5.2.1v1.00_TestDrivers.tar.Z” follows:

./test_drivers/
./test_drivers/AA/
./test_drivers/AA/PGS_AA_2DRead_Driver_f.f
./test_drivers/AA/PGS_AA_3DRead_Driver_f.f
./test_drivers/AA/PGS_AA_2DRead_Driver_c.c
./test_drivers/AA/PGS_AA_PeV_real_Driver_c.c
./test_drivers/AA/PGS_AA_PeV_integer_Driver_c.c
./test_drivers/AA/PGS_AA_PeV_string_Driver_c.c
./test_drivers/AA/PGS_AA_3DRead_Driver_c.c
./test_drivers/AA/makefile
./test_drivers/AA/makefile.f90
./test_drivers/AA/PGS_AA_PeV_integer_Driver.in
./test_drivers/AA/PGS_AA_PeV_integer_Driver_c.out_sample

./test_drivers/AA/PGS_AA_PeV_real_Driver.in
./test_drivers/AA/PGS_AA_PeV_real_Driver_c.out_sample
./test_drivers/AA/PGS_AA_PeV_string_Driver.in
./test_drivers/AA/PGS_AA_PeV_string_Driver_c.out_sample
./test_drivers/AA/PGS_AA_2DRead_Driver_c.out_sample
./test_drivers/AA/PGS_AA_2DRead_Driver_f.out_sample
./test_drivers/AA/PGS_AA_3DRead_Driver_c.out_sample
./test_drivers/AA/PGS_AA_3DRead_Driver_f.out_sample
./test_drivers/AA/README.AA
./test_drivers/AA/PGS_AA_3DRead_Driver.in
./test_drivers/AA/PGS_AA_2DRead_Driver.in
./test_drivers/AA/PGS_AA_PeV_integer_Driver_f.f
./test_drivers/AA/PGS_AA_PeV_real_Driver_f.f
./test_drivers/AA/PGS_AA_PeV_string_Driver_f.f
./test_drivers/AA/PGS_AA_PeV_real_Driver_f.out_sample
./test_drivers/AA/PGS_AA_PeV_integer_Driver_f.out_sample
./test_drivers/AA/PGS_AA_PeV_string_Driver_f.out_sample
./test_drivers/AA/PGS_AA_PeVA_integer_Driver_c.c
./test_drivers/AA/PGS_AA_PeVA_real_Driver_c.c
./test_drivers/AA/PGS_AA_PeVA_string_Driver_c.c
./test_drivers/AA/PGS_AA_PeVA_integer_Driver_f.f
./test_drivers/AA/PGS_AA_PeVA_real_Driver_f.f
./test_drivers/AA/PGS_AA_PeVA_string_Driver_f.f
./test_drivers/AA/AATestData/
./test_drivers/AA/AATestData/testdata1
./test_drivers/AA/AATestData/testdata1.bfm
./test_drivers/AA/AATestData/testdata1Support
./test_drivers/AA/AATestData/testdata2.bfm
./test_drivers/AA/AATestData/testdata2Support
./test_drivers/AA/AATestData/testdouble.bfm
./test_drivers/AA/AATestData/testdoubleSupport
./test_drivers/AA/AATestData/testfloat.bfm
./test_drivers/AA/AATestData/testfloatSupport
./test_drivers/AA/AATestData/testdata2
./test_drivers/AA/AATestData/testdouble.dat
./test_drivers/AA/AATestData/testfloat.dat
./test_drivers/AA/AATestData/testIndexFile
./test_drivers/AA/AATestData/AA_PeVA_invalid1
./test_drivers/AA/AATestData/AA_PeVA_invalid2
./test_drivers/AA/AATestData/AA_PeVA_valid1
./test_drivers/AA/AATestData/AA_PeVA_valid2
./test_drivers/AA/AATestData/AA_PeVA_valid3
./test_drivers/AA/AATestData/testdata1Support_dec
./test_drivers/AA/AATestData/testdata2Support_dec
./test_drivers/AA/AATestData/testdata2_dec
./test_drivers/AA/AATestData/testdoubleSupport_dec
./test_drivers/AA/AATestData/testfloatSupport_dec
./test_drivers/AA/AATestData/testdata2_dec.bfm
./test_drivers/AA/AATestData/testdata2Support_sgi64
./test_drivers/AA/AATestData/testdata2_sgi64
./test_drivers/AA/AATestData/testdata2_sgi64.bfm
./test_drivers/AA/PGS_AA_PeVA_integer_Driver.in
./test_drivers/AA/PGS_AA_PeVA_integer_Driver_c.out_sample
./test_drivers/AA/PGS_AA_PeVA_integer_Driver_f.out_sample
./test_drivers/AA/PGS_AA_PeVA_real_Driver.in
./test_drivers/AA/PGS_AA_PeVA_real_Driver_c.out_sample
./test_drivers/AA/PGS_AA_PeVA_real_Driver_f.out_sample
./test_drivers/AA/PGS_AA_PeVA_string_Driver.in

./test_drivers/AA/PGS_AA_PeVA_string_Driver_c.out_sample
./test_drivers/AA/PGS_AA_2Dgeo_Driver_c.c
./test_drivers/AA/PGS_AA_2Dgeo_Driver_f.f
./test_drivers/AA/PGS_AA_3Dgeo_Driver_c.c
./test_drivers/AA/PGS_AA_3Dgeo_Driver_f.f
./test_drivers/AA/PGS_AA_dcw_Driver_c.c
./test_drivers/AA/PGS_AA_dcw_Driver_f.f
./test_drivers/AA/PGS_AA_dem_double_Driver_c.c
./test_drivers/AA/PGS_AA_dem_double_Driver_f.f
./test_drivers/AA/PGS_AA_dem_integer_Driver_c.c
./test_drivers/AA/PGS_AA_dem_integer_Driver_f.f
./test_drivers/AA/PGS_AA_dem_long_Driver_c.c
./test_drivers/AA/PGS_AA_dem_long_Driver_f.f
./test_drivers/AA/PGS_AA_dem_real_Driver_c.c
./test_drivers/AA/PGS_AA_dem_real_Driver_f.f
./test_drivers/AA/PGS_AA_2Dgeo_Driver.in
./test_drivers/AA/PGS_AA_2Dgeo_Driver_c.out_sample
./test_drivers/AA/PGS_AA_2Dgeo_Driver_f.out_sample
./test_drivers/AA/PGS_AA_3Dgeo_Driver.in
./test_drivers/AA/PGS_AA_3Dgeo_Driver_c.out_sample
./test_drivers/AA/PGS_AA_3Dgeo_Driver_f.out_sample
./test_drivers/AA/PGS_AA_dcw_Driver.in
./test_drivers/AA/PGS_AA_dcw_Driver_c.out_sample
./test_drivers/AA/PGS_AA_dcw_Driver_f.out_sample
./test_drivers/AA/PGS_AA_dem_double_Driver.in
./test_drivers/AA/PGS_AA_dem_double_Driver_c.out_sample
./test_drivers/AA/PGS_AA_dem_double_Driver_f.out_sample
./test_drivers/AA/PGS_AA_dem_integer_Driver.in
./test_drivers/AA/PGS_AA_dem_integer_Driver_c.out_sample
./test_drivers/AA/PGS_AA_dem_integer_Driver_f.out_sample
./test_drivers/AA/PGS_AA_dem_long_Driver.in
./test_drivers/AA/PGS_AA_dem_long_Driver_c.out_sample
./test_drivers/AA/PGS_AA_dem_long_Driver_f.out_sample
./test_drivers/AA/PGS_AA_dem_real_Driver.in
./test_drivers/AA/PGS_AA_dem_real_Driver_c.out_sample
./test_drivers/AA/PGS_AA_dem_real_Driver_f.out_sample
./test_drivers/AA/PGS_AA_PeVA_string_Driver_f.out_sample
./test_drivers/CBP/
./test_drivers/CBP/PGS_CBP_Earth_CB_Vector_Driver_c.c
./test_drivers/CBP/PGS_CBP_Sat_CB_Vector_Driver_c.c
./test_drivers/CBP/makefile
./test_drivers/CBP/PGS_CBP_Earth_CB_Vector_Driver_f.f
./test_drivers/CBP/PGS_CBP_SolarTimeCoords_Driver_f.f
./test_drivers/CBP/PGS_CBP_Sat_CB_Vector_Driver_f.f
./test_drivers/CBP/PGS_CBP_SolarTimeCoords_Driver_c.c
./test_drivers/CBP/PGS_CBP_Earth_CB_Vector_Driver_c.out_sample
./test_drivers/CBP/PGS_CBP_Earth_CB_Vector_Driver_f.out_sample
./test_drivers/CBP/PGS_CBP_Earth_CB_Vector_Driver.in
./test_drivers/CBP/PGS_CBP_Sat_CB_Vector_Driver.in
./test_drivers/CBP/PGS_CBP_SolarTimeCoords_Driver.in
./test_drivers/CBP/PGS_CBP_SolarTimeCoords_Driver_c.out_sample
./test_drivers/CBP/PGS_CBP_SolarTimeCoords_Driver_f.out_sample
./test_drivers/CBP/PGS_CBP_Sat_CB_Vector_Driver_c.out_sample
./test_drivers/CBP/PGS_CBP_Sat_CB_Vector_Driver_f.out_sample
./test_drivers/CBP/README.CBP
./test_drivers/CBP/makefile.f90
./test_drivers/CBP/PGS_CBP_body_inFOV_Driver_c.c
./test_drivers/CBP/PGS_CBP_body_inFOV_Driver_f.f

./test_drivers/CBP/PGS_CBP_body_inFOV_Driver.in
./test_drivers/CBP/PGS_CBP_body_inFOV_Driver_c.out_sample
./test_drivers/CBP/PGS_CBP_body_inFOV_Driver_f.out_sample
./test_drivers/CSC/
./test_drivers/CSC/PGS_CSC_GreenwichHour_Driver_c.c
./test_drivers/CSC/PGS_CSC_DayNight_Driver_f.f
./test_drivers/CSC/PGS_CSC_ZenithAzimuth_Driver_c.c
./test_drivers/CSC/makefile
./test_drivers/CSC/PGS_CSC_ECItoSC_Driver_c.c
./test_drivers/CSC/PGS_CSC_ECItoECR_Driver_c.c
./test_drivers/CSC/PGS_CSC_GreenwichHour_Driver_f.f
./test_drivers/CSC/PGS_CSC_ECRtoGEO_Driver_f.f
./test_drivers/CSC/PGS_CSC_ECRtoGEO_Driver_c.c
./test_drivers/CSC/PGS_CSC_GEOtoECR_Driver_f.f
./test_drivers/CSC/PGS_CSC_ECItoSC_Driver_f.f
./test_drivers/CSC/PGS_CSC_ECItoECR_Driver_f.f
./test_drivers/CSC/PGS_CSC_GetFOV_Pixel_Driver_f.f
./test_drivers/CSC/PGS_CSC_GetFOV_Pixel_Driver_c.c
./test_drivers/CSC/PGS_CSC_ZenithAzimuth_Driver_f.f
./test_drivers/CSC/PGS_CSC_GEOtoECR_Driver_c.c
./test_drivers/CSC/PGS_CSC_DayNight_Driver_c.c
./test_drivers/CSC/PGS_CSC_SubSatPoint_Driver_f.f
./test_drivers/CSC/PGS_CSC_ECRtoECI_Driver_f.f
./test_drivers/CSC/PGS_CSC_SCtoECI_Driver_f.f
./test_drivers/CSC/PGS_CSC_ORBtoSC_Driver_f.f
./test_drivers/CSC/PGS_CSC_SCtoORB_Driver_f.f
./test_drivers/CSC/PGS_CSC_SCtoECI_Driver_c.c
./test_drivers/CSC/PGS_CSC_ECRtoECI_Driver_c.c
./test_drivers/CSC/PGS_CSC_ORBtoSC_Driver_c.c
./test_drivers/CSC/PGS_CSC_SubSatPoint_Driver_c.c
./test_drivers/CSC/PGS_CSC_SCtoORB_Driver_c.c
./test_drivers/CSC/makefile.f90
./test_drivers/CSC/PGS_CSC_DayNight_Driver.in
./test_drivers/CSC/PGS_CSC_DayNight_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_GreenwichHour_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_GreenwichHour_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ZenithAzimuth_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ZenithAzimuth_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ZenithAzimuth_Driver.in
./test_drivers/CSC/PGS_CSC_ECItoECR_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ECItoECR_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ECRtoECI_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ECRtoECI_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ECRtoGEO_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ECRtoGEO_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_GEOtoECR_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_GEOtoECR_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ECItoECR_Driver.in
./test_drivers/CSC/PGS_CSC_ECRtoECI_Driver.in
./test_drivers/CSC/PGS_CSC_ECRtoGEO_Driver.in
./test_drivers/CSC/PGS_CSC_GEOtoECR_Driver.in
./test_drivers/CSC/PGS_CSC_SubSatPoint_Driver.in
./test_drivers/CSC/PGS_CSC_ORBtoSC_Driver.in
./test_drivers/CSC/PGS_CSC_SCtoORB_Driver.in
./test_drivers/CSC/PGS_CSC_ORBtoSC_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ORBtoSC_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_SCtoORB_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_SCtoORB_Driver_f.out_sample

./test_drivers/CSC/README.CSC
./test_drivers/CSC/PGS_CSC_GetFOV_Pixel_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_GetFOV_Pixel_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_GetFOV_Pixel_Driver.in
./test_drivers/CSC/PGS_CSC_ECItoSC_Driver.in
./test_drivers/CSC/PGS_CSC_SCtoECI_Driver.in
./test_drivers/CSC/PGS_CSC_ECItoSC_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_SCtoECI_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ECItoSC_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_SCtoECI_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_SubSatPoint_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_SubSatPoint_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_GreenwichHour_Driver.in
./test_drivers/CSC/PGS_CSC_DayNight_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_Earthpt_FOV_Driver_c.c
./test_drivers/CSC/PGS_CSC_Earthpt_FOV_Driver_f.f
./test_drivers/CSC/PGS_CSC_Earthpt_FOV_Driver.in
./test_drivers/CSC/PGS_CSC_Earthpt_FOV_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_Earthpt_FOV_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_nutate2000_Driver_c.c
./test_drivers/CSC/PGS_CSC_nutate2000_Driver_f.f
./test_drivers/CSC/PGS_CSC_precs2000_Driver_c.c
./test_drivers/CSC/PGS_CSC_precs2000_Driver_f.f
./test_drivers/CSC/PGS_CSC_SpaceRefract_Driver_c.c
./test_drivers/CSC/PGS_CSC_SpaceRefract_Driver_f.f
./test_drivers/CSC/PGS_CSC_ECItoORB_Driver_c.c
./test_drivers/CSC/PGS_CSC_ECItoORB_Driver_f.f
./test_drivers/CSC/PGS_CSC_ORBtoECI_Driver_c.c
./test_drivers/CSC/PGS_CSC_ORBtoECI_Driver_f.f
./test_drivers/CSC/PGS_CSC_ORBtoECI_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ORBtoECI_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ORBtoECI_Driver.in
./test_drivers/CSC/PGS_CSC_ECItoORB_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_ECItoORB_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_ECItoORB_Driver.in
./test_drivers/CSC/PGS_CSC_SpaceRefract_Driver.in
./test_drivers/CSC/PGS_CSC_SpaceRefract_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_SpaceRefract_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_nutate2000_Driver.in
./test_drivers/CSC/PGS_CSC_nutate2000_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_nutate2000_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_precs2000_Driver.in
./test_drivers/CSC/PGS_CSC_precs2000_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_precs2000_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_Earthpt_FixedFOV_Driver.in
./test_drivers/CSC/PGS_CSC_Earthpt_FixedFOV_Driver_c.c
./test_drivers/CSC/PGS_CSC_Earthpt_FixedFOV_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_Earthpt_FixedFOV_Driver_f.f
./test_drivers/CSC/PGS_CSC_Earthpt_FixedFOV_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_J2000toTOD_Driver.in
./test_drivers/CSC/PGS_CSC_J2000toTOD_Driver_c.c
./test_drivers/CSC/PGS_CSC_J2000toTOD_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_J2000toTOD_Driver_f.f
./test_drivers/CSC/PGS_CSC_J2000toTOD_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_TODtoJ2000_Driver.in
./test_drivers/CSC/PGS_CSC_TODtoJ2000_Driver_c.c
./test_drivers/CSC/PGS_CSC_TODtoJ2000_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_TODtoJ2000_Driver_f.f

./test_drivers/CSC/PGS_CSC_TODtoJ2000_Driver_f.out_sample
./test_drivers/CSC/PGS_CSC_GrazingRay_Driver.in
./test_drivers/CSC/PGS_CSC_GrazingRay_Driver_c.c
./test_drivers/CSC/PGS_CSC_GrazingRay_Driver_c.out_sample
./test_drivers/CSC/PGS_CSC_GrazingRay_Driver_f.f
./test_drivers/CSC/PGS_CSC_GrazingRay_Driver_f.out_sample
./test_drivers/CUC/
./test_drivers/CUC/PGS_CUC_Conv_Driver_c.c
./test_drivers/CUC/PGS_CUC_Cons_Driver_c.c
./test_drivers/CUC/makefile
./test_drivers/CUC/makefile.f90
./test_drivers/CUC/PGS_CUC_Conv_Driver_f.f
./test_drivers/CUC/PGS_CUC_Cons_Driver_f.f
./test_drivers/CUC/PGS_CUC_Conv_Driver_f.out_sample
./test_drivers/CUC/PGS_CUC_Conv_Driver.in
./test_drivers/CUC/README.CUC
./test_drivers/CUC/PGS_CUC_Conv_Driver_c.out_sample
./test_drivers/CUC/PGS_CUC_Cons_Driver.in
./test_drivers/CUC/PGS_CUC_Cons_Driver_c.out_sample
./test_drivers/CUC/PGS_CUC_Cons_Driver_f.out_sample
./test_drivers/EPH/
./test_drivers/EPH/makefile
./test_drivers/EPH/PGS_EPH_EphemAttit_Driver_c.c
./test_drivers/EPH/makefile.f90
./test_drivers/EPH/PGS_EPH_EphemAttit_Driver.in
./test_drivers/EPH/PGS_EPH_EphemAttit_Driver_f.f
./test_drivers/EPH/PGS_EPH_EphemAttit_Driver_c.out_sample
./test_drivers/EPH/PGS_EPH_EphemAttit_Driver_f.out_sample
./test_drivers/EPH/README.EPH
./test_drivers/EPH/PGS_EPH_GetEphMet_Driver.in
./test_drivers/EPH/PGS_EPH_GetEphMet_Driver_c.c
./test_drivers/EPH/PGS_EPH_GetEphMet_Driver_c.out_sample
./test_drivers/EPH/PGS_EPH_GetEphMet_Driver_f.f
./test_drivers/EPH/PGS_EPH_GetEphMet_Driver_f.out_sample
./test_drivers/GCT/
./test_drivers/GCT/PGS_GCT_Driver_c.c
./test_drivers/GCT/makefile
./test_drivers/GCT/makefile.f90
./test_drivers/GCT/PGS_GCT_Driver_f.f
./test_drivers/GCT/README.GCT
./test_drivers/GCT/PGS_GCT_Driver_c.out_sample
./test_drivers/GCT/PGS_GCT_Driver_f.out_sample
./test_drivers/GCT/PGS_GCT_Driver.in
./test_drivers/IO/
./test_drivers/IO/GEN/
./test_drivers/IO/GEN/PGS_Perm_IO_Driver1.in_c
./test_drivers/IO/GEN/PGS_Perm_IO_Driver1.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver1.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver1_c.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver1_f.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver1_f90.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver2.in_c
./test_drivers/IO/GEN/PGS_Perm_IO_Driver2.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver2.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver2_c.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver2_f.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver2_f90.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver8.in_c

./test_drivers/IO/GEN/PGS_Perm_IO_Driver8.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver8.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver8_c.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver8_f.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver8_f90.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver9a.in_c
./test_drivers/IO/GEN/PGS_Perm_IO_Driver9a.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver9a.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver9a_c.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver9a_f.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver9a_f90.out_sample
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_INIT1.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_INIT1.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_INIT2.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_INIT2.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_INIT3.in_f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_INIT3.in_f90
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_c.c
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_f.f
./test_drivers/IO/GEN/PGS_Perm_IO_Driver_f90.f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver3.in_c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver3.in_f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver3.in_f90
./test_drivers/IO/GEN/PGS_Temp_IO_Driver3_c.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver3_f.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver3_f90.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver4.in_c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver4.in_f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver4.in_f90
./test_drivers/IO/GEN/PGS_Temp_IO_Driver4_c.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver4_f.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver4_f90.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver5.in_c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver5.in_f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver5.in_f90
./test_drivers/IO/GEN/PGS_Temp_IO_Driver5_c.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver5_f.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver5_f90.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver6.in_c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver6.in_f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver6.in_f90
./test_drivers/IO/GEN/PGS_Temp_IO_Driver6_c.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver6_f.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver6_f90.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver7.in_c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver7.in_f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver7.in_f90
./test_drivers/IO/GEN/PGS_Temp_IO_Driver7_c.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver7_f.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver7_f90.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver9b.in_c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver9b.in_f
./test_drivers/IO/GEN/PGS_Temp_IO_Driver9b.in_f90
./test_drivers/IO/GEN/PGS_Temp_IO_Driver9b_c.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver9b_f.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver9b_f90.out_sample
./test_drivers/IO/GEN/PGS_Temp_IO_Driver_c.c
./test_drivers/IO/GEN/PGS_Temp_IO_Driver_f.f

./test_drivers/IO/GEN/PGS_Temp_IO_Driver_f90.f
./test_drivers/IO/GEN/refresh_c
./test_drivers/IO/GEN/refresh_f
./test_drivers/IO/GEN/refresh_f90
./test_drivers/IO/GEN/logdata
./test_drivers/IO/GEN/mkdatadirs
./test_drivers/IO/GEN/makefile
./test_drivers/IO/GEN/makefile.f90
./test_drivers/IO/GEN/README.IO
./test_drivers/IO/GEN/PGS_SH_IO.in
./test_drivers/IO/GEN/io-env.setup
./test_drivers/IO/L0/
./test_drivers/IO/L0/PGS_IO_L0_Driver_f.f
./test_drivers/IO/L0/PGS_IO_L0_Driver_c.c
./test_drivers/IO/L0/makefile
./test_drivers/IO/L0/makefile.f90
./test_drivers/IO/L0/README.L0
./test_drivers/IO/L0/PGS_IO_L0_Driver.in
./test_drivers/IO/L0/PGS_IO_L0_Driver_c.out_sample
./test_drivers/IO/L0/runL0sim.csh
./test_drivers/IO/L0/L0sim.EOSAM.input
./test_drivers/IO/L0/L0sim.EOSPM.input
./test_drivers/IO/L0/L0sim.TRMM.input
./test_drivers/IO/L0/L0sim.TRMM1.input
./test_drivers/IO/L0/PGS_IO_L0_Driver_f.out_sample
./test_drivers/IO/L0/P0420132AAAAAAAAAAAAAA97292141112100.PDS
./test_drivers/IO/L0/P0420132AAAAAAAAAAAAAA97292141112101.PDS
./test_drivers/MEM/
./test_drivers/MEM/PGS_DYN_MEM_Driver_c.c
./test_drivers/MEM/makefile
./test_drivers/MEM/PGS_SHM_MEM_Driver_c.c
./test_drivers/MEM/README.MEM
./test_drivers/MEM/PGS_DYN_MEM_Driver1.in
./test_drivers/MEM/PGS_DYN_MEM_Driver2.in
./test_drivers/MEM/PGS_SHM_MEM_Driver1.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver2.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver3.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver4.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver5.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver6.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver7.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver8.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver9.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver10.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver11.sh
./test_drivers/MEM/PGS_SHM_MEM_Driver1.in
./test_drivers/MEM/PGS_SHM_MEM_Driver2.in
./test_drivers/MEM/PGS_SHM_MEM_Driver3.in
./test_drivers/MEM/PGS_SHM_MEM_Driver4.in
./test_drivers/MEM/PGS_SHM_MEM_Driver8.in
./test_drivers/MEM/PGS_SHM_MEM_Driver9.in
./test_drivers/MEM/PGS_SHM_MEM_Driver10.in
./test_drivers/MEM/PGS_SHM_MEM_Driver11.in
./test_drivers/MEM/PGS_DYN_MEM_Driver2_c.out_sample
./test_drivers/MEM/PGS_DYN_MEM_Driver1_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver.init
./test_drivers/MEM/PGS_SHM_MEM_Driver.term
./test_drivers/MEM/PGS_SHM_MEM_Driver1_c.out_sample

./test_drivers/MEM/PGS_SHM_MEM_Driver2_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver10_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver11_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver3_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver4_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver8_c.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver9_c.out_sample
./test_drivers/MEM/makefile.f90
./test_drivers/MEM/PGS_SHM_MEM_Driver_f.f
./test_drivers/MEM/PGS_SHM_MEM_Driver2_f.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver2.in_f
./test_drivers/MEM/PGS_SHM_MEM_Driver1_f.out_sample
./test_drivers/MEM/PGS_SHM_MEM_Driver1.in_f
./test_drivers/MEM/PGS_SHM_MEM_Driver.sh_f
./test_drivers/MET/
./test_drivers/MET/PGS_MET_Driver_c.c
./test_drivers/MET/makefile
./test_drivers/MET/PGS_MET_Driver_f.f
./test_drivers/MET/MET_TestData/
./test_drivers/MET/MET_TestData/MCFfile
./test_drivers/MET/MET_TestData/MCFfile_1
./test_drivers/MET/MET_TestData/MCFfile_3
./test_drivers/MET/MET_TestData/MCFfile_6
./test_drivers/MET/MET_TestData/data_dict
./test_drivers/MET/MET_TestData/MCFfile_8
./test_drivers/MET/MET_TestData/LISUSR
./test_drivers/MET/MET_TestData/MOP_THRESH
./test_drivers/MET/MET_TestData/MCFmorahan4
./test_drivers/MET/MET_TestData/asciitestfile
./test_drivers/MET/makefile.f90
./test_drivers/MET/PGS_MET_Driver.in
./test_drivers/MET/PGS_MET_Driver_f.out_sample
./test_drivers/MET/PGS_MET_Driver_c.out_sample
./test_drivers/MET/README.MET
./test_drivers/PC/
./test_drivers/PC/PGS_PC_GenUniqueID_Driver_c.c
./test_drivers/PC/PGS_PC_GetConfigData_Driver_c.c
./test_drivers/PC/PGS_PC_GetNumberOfFiles_Driver_c.c
./test_drivers/PC/PGS_PC_GetReference_Driver_c.c
./test_drivers/PC/makefile
./test_drivers/PC/PGS_PC_GenUniqueID_Driver_f.f
./test_drivers/PC/PGS_PC_GetConfigData_Driver_f.f
./test_drivers/PC/PGS_PC_GetNumberOfFiles_Driver_f.f
./test_drivers/PC/PGS_PC_GetReference_Driver_f.f
./test_drivers/PC/PGS_PC_GetFileAttr_Driver_c.c
./test_drivers/PC/PGS_PC_GetFileByAttr_Driver_c.c
./test_drivers/PC/PGS_PC_GetFileAttr_Driver_f.f
./test_drivers/PC/PGS_PC_GetFileByAttr_Driver_f.f
./test_drivers/PC/makefile.f90
./test_drivers/PC/modis.attr1999_017
./test_drivers/PC/modis.attr1999_018
./test_drivers/PC/modis.attr1999_019
./test_drivers/PC/modis.attr1999_020
./test_drivers/PC/modis.v1999_017
./test_drivers/PC/modis.v1999_018
./test_drivers/PC/modis.v1999_019
./test_drivers/PC/modis.v1999_020
./test_drivers/PC/PGS_PC_GenUniqueID_Driver_c.out_sample

./test_drivers/PC/PGS_PC_GenUniqueID_Driver_f.out_sample
./test_drivers/PC/PGS_PC_GetConfigData_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetConfigData_Driver_f.out_sample
./test_drivers/PC/PGS_PC_GetFileByAttr_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetFileByAttr_Driver_f.out_sample
./test_drivers/PC/PGS_PC_GetNumberOfFiles_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetNumberOfFiles_Driver_f.out_sample
./test_drivers/PC/PGS_PC_GetReference_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetReference_Driver_f.out_sample
./test_drivers/PC/PGS_PC_GenUniqueID_Driver.in
./test_drivers/PC/PGS_PC_GetConfigData_Driver.in
./test_drivers/PC/PGS_PC_GetFileAttr_Driver.in
./test_drivers/PC/PGS_PC_GetFileByAttr_Driver.in
./test_drivers/PC/PGS_PC_GetNumberOfFiles_Driver.in
./test_drivers/PC/PGS_PC_GetReference_Driver.in
./test_drivers/PC/PGS_PC_GetFileAttr_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetFileAttr_Driver_f.out_sample
./test_drivers/PC/README.PC
./test_drivers/PC/PGS_PC_GetConfigDataCom_Driver.in
./test_drivers/PC/PGS_PC_GetFileAttrCom_Driver.csh.in
./test_drivers/PC/PGS_PC_GetFileAttrCom_Driver.sh.in
./test_drivers/PC/PGS_PC_GetNumberOfFilesCom_Driver.in
./test_drivers/PC/PGS_PC_GetReferenceCom_Driver.in
./test_drivers/PC/PGS_PC_GetTempReferenceCom_Driver.csh.in
./test_drivers/PC/PGS_PC_GetTempReferenceCom_Driver.sh.in
./test_drivers/PC/PGS_PC_TempDeleteCom_Driver.csh.in
./test_drivers/PC/PGS_PC_TempDeleteCom_Driver.sh.in
./test_drivers/PC/PGS_PC_GetConfigDataCom_Driver.sh
./test_drivers/PC/PGS_PC_GetFileAttrCom_Driver.sh
./test_drivers/PC/PGS_PC_GetNumberOfFilesCom_Driver.sh
./test_drivers/PC/PGS_PC_GetReferenceCom_Driver.sh
./test_drivers/PC/PGS_PC_GetTempReferenceCom_Driver.sh
./test_drivers/PC/PGS_PC_TempDeleteCom_Driver.sh
./test_drivers/PC/PGS_PC_GetConfigDataCom_Driver.csh
./test_drivers/PC/PGS_PC_GetFileAttrCom_Driver.csh
./test_drivers/PC/PGS_PC_GetNumberOfFilesCom_Driver.csh
./test_drivers/PC/PGS_PC_GetReferenceCom_Driver.csh
./test_drivers/PC/PGS_PC_GetTempReferenceCom_Driver.csh
./test_drivers/PC/PGS_PC_TempDeleteCom_Driver.csh
./test_drivers/PC/modis.v1999_021
./test_drivers/PC/modis.attr1999_021
./test_drivers/PC/PGS_PC_GetConfigDataCom_Driver.csh.out_sample
./test_drivers/PC/PGS_PC_GetConfigDataCom_Driver.sh.out_sample
./test_drivers/PC/PGS_PC_GetFileAttrCom_Driver.csh.out_sample
./test_drivers/PC/PGS_PC_GetFileAttrCom_Driver.sh.out_sample
./test_drivers/PC/PGS_PC_GetNumberOfFilesCom_Driver.csh.out_sample
./test_drivers/PC/PGS_PC_GetNumberOfFilesCom_Driver.sh.out_sample
./test_drivers/PC/PGS_PC_GetReferenceCom_Driver.csh.out_sample
./test_drivers/PC/PGS_PC_GetReferenceCom_Driver.sh.out_sample
./test_drivers/PC/PGS_PC_GetTempReferenceCom_Driver.csh.out_sample
./test_drivers/PC/PGS_PC_GetTempReferenceCom_Driver.sh.out_sample
./test_drivers/PC/PGS_PC_TempDeleteCom_Driver.csh.out_sample
./test_drivers/PC/PGS_PC_TempDeleteCom_Driver.sh.out_sample
./test_drivers/PC/PGS_PC_GetReferenceType_Driver_c.c
./test_drivers/PC/PGS_PC_GetReferenceType_Driver_f.f
./test_drivers/PC/PGS_PC_GetReferenceType_Driver.in
./test_drivers/PC/PGS_PC_GetReferenceType_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetReferenceType_Driver_f.out_sample

./test_drivers/PC/PGS_PC_Shell_Driver.csh
./test_drivers/PC/PGS_PC_Shell_Driver.csh.out_sample
./test_drivers/PC/pctcheck.out_sample
./test_drivers/PC/PGS_PC_GetUniversalRef_Driver.in
./test_drivers/PC/PGS_PC_GetUniversalRef_Driver_c.c
./test_drivers/PC/PGS_PC_GetUniversalRef_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetUniversalRef_Driver_f.f
./test_drivers/PC/PGS_PC_GetUniversalRef_Driver_f.out_sample
./test_drivers/PC/PGS_PC_GetFileSize_Driver.in
./test_drivers/PC/PGS_PC_GetFileSize_Driver_c.c
./test_drivers/PC/PGS_PC_GetFileSize_Driver_c.out_sample
./test_drivers/PC/PGS_PC_GetFileSize_Driver_f.f
./test_drivers/PC/PGS_PC_GetFileSize_Driver_f.out_sample
./test_drivers/SMF/
./test_drivers/SMF/PGS_SMF_GetActionByCode_Driver_f.f
./test_drivers/SMF/PGS_SMF_GetInstrName_Driver_f.f
./test_drivers/SMF/PGS_SMF_GetMsgByCode_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestNoticeLevel_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestStatusLevel_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestFatalLevel_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestUserInfoLevel_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestWarningLevel_Driver_f.f
./test_drivers/SMF/makefile
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver_c.c
./test_drivers/SMF/PGS_SMF_GetInstrName_Driver_c.c
./test_drivers/SMF/PGS_SMF_GetMsg_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestErrorLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver_f.f
./test_drivers/SMF/PGS_SMF_GenerateStatusReport_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestNoticeLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestStatusLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestSuccessLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestUserInfoLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestWarningLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestMessageLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestMessageLevel_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestSuccessLevel_Driver_f.f
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver_c.c
./test_drivers/SMF/PGS_SMF_GetActionByCode_Driver_c.c
./test_drivers/SMF/PGS_SMF_TestFatalLevel_Driver_c.c
./test_drivers/SMF/PGS_SMF_GenerateStatusReport_Driver_c.c
./test_drivers/SMF/makefile.f90
./test_drivers/SMF/PGS_SMF_GetMsgByCode_Driver_c.c
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver_f.f
./test_drivers/SMF/PGS_SMF_GetMsg_Driver_f.f
./test_drivers/SMF/PGS_SMF_TestErrorLevel_Driver_f.f
./test_drivers/SMF/README.SMF
./test_drivers/SMF/AVHRR_99.t
./test_drivers/SMF/.netrc
./test_drivers/SMF/PGS_SMF_GenerateStatusReport_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_GenerateStatusReport_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_GetActionByCode_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_GetActionByCode_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_GetInstrName_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_GetInstrName_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_GetMsgByCode_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_GetMsgByCode_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_GetMsg_Driver_c.out_sample

./test_drivers/SMF/PGS_SMF_GetMsg_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestStatusLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestStatusLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_GenerateStatusReport_Driver.in
./test_drivers/SMF/PGS_SMF_GetActionByCode_Driver.in
./test_drivers/SMF/PGS_SMF_GetInstrName_Driver.in
./test_drivers/SMF/PGS_SMF_GetMsg_Driver.in
./test_drivers/SMF/PGS_SMF_GetMsgByCode_Driver.in
./test_drivers/SMF/PGS_SMF_TestStatusLevel_Driver.in
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver1.in
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver2.in
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver1.in
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver2.in
./test_drivers/SMF/PGS_SMF_TestErrorLevel_Driver.in
./test_drivers/SMF/PGS_SMF_TestFatalLevel_Driver.in
./test_drivers/SMF/PGS_SMF_TestMessageLevel_Driver.in
./test_drivers/SMF/PGS_SMF_TestNoticeLevel_Driver.in
./test_drivers/SMF/PGS_SMF_TestSuccessLevel_Driver.in
./test_drivers/SMF/PGS_SMF_TestUserInfoLevel_Driver.in
./test_drivers/SMF/PGS_SMF_TestWarningLevel_Driver.in
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver1_c.out_sample
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver1_f.out_sample
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver2_c.out_sample
./test_drivers/SMF/PGS_SMF_CreateMsgTag_Driver2_f.out_sample
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver1_c.out_sample
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver1_f.out_sample
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver2_c.out_sample
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver2_f.out_sample
./test_drivers/SMF/PGS_SMF_TestErrorLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestErrorLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestFatalLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestFatalLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestMessageLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestMessageLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestNoticeLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestNoticeLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestSuccessLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestSuccessLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestUserInfoLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestUserInfoLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_SMF_TestWarningLevel_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_TestWarningLevel_Driver_f.out_sample
./test_drivers/SMF/PGS_99_sample
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver_c.csh
./test_drivers/SMF/PGS_SMF_SendRuntimeData_Driver_f.csh
./test_drivers/SMF/PGS_SMF_EventLogger_Driver.csh
./test_drivers/SMF/PGS_SMF_EventLogger_Driver.in
./test_drivers/SMF/PGS_SMF_EventLogger_Driver_c.c
./test_drivers/SMF/PGS_SMF_EventLogger_Driver_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver.csh
./test_drivers/SMF/PGS_SMF_LogStatus_Driver_c.c
./test_drivers/SMF/PGS_SMF_LogStatus_Driver10_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver11_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver12_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver13_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver14_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver15_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver16_c.out_sample

./test_drivers/SMF/PGS_SMF_LogStatus_Driver17_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver18_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver19_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver1_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver2_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver3_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver4_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver5_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver6_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver7_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver8_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver9_c.out_sample
./test_drivers/SMF/PGS_SMF_LogStatus_Driver_f.f
./test_drivers/TD/
./test_drivers/TD/PGS_TD_ASCIItime_AtoB_Driver_c.c
./test_drivers/TD/PGS_TD_ASCIItime_BtoA_Driver_c.c
./test_drivers/TD/PGS_TD_GPStoUTC_Driver_c.c
./test_drivers/TD/PGS_TD_TAItoUTC_Driver_c.c
./test_drivers/TD/PGS_TD_TimeInterval_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoGPS_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoTAI_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoTDTjed_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoUT1_Driver_c.c
./test_drivers/TD/PGS_TD_SCtime_to_UTC_Driver_c.c
./test_drivers/TD/PGS_TD_UTC_to_SCtime_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoTDBjed_Driver_c.c
./test_drivers/TD/makefile
./test_drivers/TD/PGS_TD_ASCIItime_AtoB_Driver_f.f
./test_drivers/TD/PGS_TD_ASCIItime_BtoA_Driver_f.f
./test_drivers/TD/PGS_TD_GPStoUTC_Driver_f.f
./test_drivers/TD/PGS_TD_TAItoUTC_Driver_f.f
./test_drivers/TD/PGS_TD_TimeInterval_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoGPS_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoTAI_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoTDBjed_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoTDTjed_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoUT1_Driver_f.f
./test_drivers/TD/PGS_TD_SCtime_to_UTC_Driver_f.f
./test_drivers/TD/PGS_TD_UTC_to_SCtime_Driver_f.f
./test_drivers/TD/makefile.f90
./test_drivers/TD/PGS_TD_GPStoUTC_Driver.in
./test_drivers/TD/PGS_TD_TAItoUTC_Driver.in
./test_drivers/TD/PGS_TD_TimeInterval_Driver.in
./test_drivers/TD/PGS_TD_UTCtoGPS_Driver.in
./test_drivers/TD/PGS_TD_UTCtoTAI_Driver.in
./test_drivers/TD/PGS_TD_UTCtoTDBjed_Driver.in
./test_drivers/TD/PGS_TD_UTCtoTDTjed_Driver.in
./test_drivers/TD/PGS_TD_UTCtoUT1_Driver.in
./test_drivers/TD/README.TD
./test_drivers/TD/PGS_TD_ASCIItime_AtoB_Driver.in
./test_drivers/TD/PGS_TD_ASCIItime_BtoA_Driver.in
./test_drivers/TD/PGS_TD_ASCIItime_BtoA_Driver_c.out_sample
./test_drivers/TD/PGS_TD_ASCIItime_AtoB_Driver_c.out_sample
./test_drivers/TD/PGS_TD_ASCIItime_AtoB_Driver_f.out_sample
./test_drivers/TD/PGS_TD_GPStoUTC_Driver_f.out_sample
./test_drivers/TD/PGS_TD_GPStoUTC_Driver_c.out_sample
./test_drivers/TD/PGS_TD_SCtime_to_UTC_Driver.in
./test_drivers/TD/PGS_TD_SCtime_to_UTC_Driver_c.out_sample

./test_drivers/TD/PGS_TD_TAItoUTC_Driver_f.out_sample
./test_drivers/TD/PGS_TD_TAItoUTC_Driver_c.out_sample
./test_drivers/TD/PGS_TD_TimeInterval_Driver_c.out_sample
./test_drivers/TD/PGS_TD_TimeInterval_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTC_to_SCtime_Driver.in
./test_drivers/TD/PGS_TD_UTC_to_SCtime_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTC_to_SCtime_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoGPS_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoGPS_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoTAI_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoTAI_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoTDBjed_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoTDBjed_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoTDTjed_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoTDTjed_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoUT1_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoUT1_Driver_f.out_sample
./test_drivers/TD/PGS_TD_ASCIItime_BtoA_Driver_f.out_sample
./test_drivers/TD/PGS_TD_SCtime_to_UTC_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoUT1jd_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoUT1jd_Driver_f.f
./test_drivers/TD/PGS_TD_TAItoGAST_Driver_c.c
./test_drivers/TD/PGS_TD_TAItoGAST_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoUT1jd_Driver.in
./test_drivers/TD/PGS_TD_UTCtoUT1jd_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoUT1jd_Driver_f.out_sample
./test_drivers/TD/PGS_TD_TAItoGAST_Driver.in
./test_drivers/TD/PGS_TD_TAItoGAST_Driver_c.out_sample
./test_drivers/TD/PGS_TD_TAItoGAST_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCtoUTCjd_Driver.in
./test_drivers/TD/PGS_TD_UTCtoUTCjd_Driver_c.c
./test_drivers/TD/PGS_TD_UTCtoUTCjd_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCtoUTCjd_Driver_f.f
./test_drivers/TD/PGS_TD_UTCtoUTCjd_Driver_f.out_sample
./test_drivers/TD/PGS_TD_UTCjdtoUTC_Driver.in
./test_drivers/TD/PGS_TD_UTCjdtoUTC_Driver_c.c
./test_drivers/TD/PGS_TD_UTCjdtoUTC_Driver_c.out_sample
./test_drivers/TD/PGS_TD_UTCjdtoUTC_Driver_f.f
./test_drivers/TD/PGS_TD_UTCjdtoUTC_Driver_f.out_sample
./test_drivers/TD/PGS_TD_TAItoTAIjd_Driver.in
./test_drivers/TD/PGS_TD_TAItoTAIjd_Driver_c.c
./test_drivers/TD/PGS_TD_TAItoTAIjd_Driver_c.out_sample
./test_drivers/TD/PGS_TD_TAItoTAIjd_Driver_f.f
./test_drivers/TD/PGS_TD_TAItoTAIjd_Driver_f.out_sample
./test_drivers/TD/PGS_TD_TAIjdtoTAI_Driver.in
./test_drivers/TD/PGS_TD_TAIjdtoTAI_Driver_c.c
./test_drivers/TD/PGS_TD_TAIjdtoTAI_Driver_c.out_sample
./test_drivers/TD/PGS_TD_TAIjdtoTAI_Driver_f.f
./test_drivers/TD/PGS_TD_TAIjdtoTAI_Driver_f.out_sample
./test_drivers/TD/PGS_TD_LeapSec_Driver.in
./test_drivers/TD/PGS_TD_LeapSec_Driver_c.c
./test_drivers/TD/PGS_TD_LeapSec_Driver_c.out_sample
./test_drivers/TD/PGS_TD_LeapSec_Driver_f.f
./test_drivers/TD/PGS_TD_LeapSec_Driver_f.out_sample
./test_drivers/README
./test_drivers/Common/
./test_drivers/Common/Create_filename_f90.f
./test_drivers/Common/Create_filename_f77.f

./test_drivers/Common/rundrivers.csh
./test_drivers/Common/runMEM.csh
./test_drivers/Common/runPC.csh
./test_drivers/Common/runSMF.csh
./test_drivers/Common/cleanup.csh
./test_drivers/Common/orbsim.in
./test_drivers/Common/runL0.csh
./test_drivers/Common/runIO.csh
./test_drivers/Common/runAA.csh
./test_drivers/Common/runTests
./test_drivers/Common/PCF.baseline
./test_drivers/Common/createPCF.csh
./test_drivers/Common/runMET.csh
./test_drivers/Common/README.script
./test_drivers/Common/runCBP.csh
./test_drivers/Common/runCSC.csh
./test_drivers/Common/runEPH.csh
./test_drivers/Common/runTD.csh
./test_drivers/Common/leapsec.dat.REL_B0
./test_drivers/Common/runDEM.csh
./test_drivers/Common/utcpole.dat.REL_B0
./test_drivers/Common/diff.csh
./test_drivers/DEM/
./test_drivers/DEM/PGS_DEM_Driver.in
./test_drivers/DEM/PGS_DEM_Driver_c.c
./test_drivers/DEM/PGS_DEM_Driver_c.out_sample
./test_drivers/DEM/PGS_DEM_Driver_f.f
./test_drivers/DEM/PGS_DEM_Driver_f.out_sample
./test_drivers/DEM/README.DEM
./test_drivers/DEM/makefile
./test_drivers/DEM/makefile.f90

4.3 Hierarchical Data Files Listing

Release B Toolkit 5.2.1 “HDF4.1r1.tar.Z” tar file listing follows:

HDF4.1r1/
HDF4.1r1/config/
HDF4.1r1/config/mh-aix
HDF4.1r1/config/mh-alpha
HDF4.1r1/config/mh-cm5
HDF4.1r1/config/mh-convex
HDF4.1r1/config/mh-decstation
HDF4.1r1/config/mh-fbsd
HDF4.1r1/config/mh-fujivp
HDF4.1r1/config/mh-hpux
HDF4.1r1/config/mh-irix32
HDF4.1r1/config/mh-irix4
HDF4.1r1/config/mh-irix5
HDF4.1r1/config/mh-irix6
HDF4.1r1/config/mh-linux
HDF4.1r1/config/mh-mac
HDF4.1r1/config/mh-solaris
HDF4.1r1/config/mh-solarisx86
HDF4.1r1/config/mh-sun
HDF4.1r1/config/mh-t3d
HDF4.1r1/config/mh-unicos
HDF4.1r1/hdf/

HDF4.1r1/hdf/fmpool/
HDF4.1r1/hdf/fmpool/config/
HDF4.1r1/hdf/fmpool/config/fmpaix.h
HDF4.1r1/hdf/fmpool/config/fmpalpha.h
HDF4.1r1/hdf/fmpool/config/fmpcm5.h
HDF4.1r1/hdf/fmpool/config/fmpconvex.h
HDF4.1r1/hdf/fmpool/config/fmpdec.h
HDF4.1r1/hdf/fmpool/config/fmpfbsd.h
HDF4.1r1/hdf/fmpool/config/fmpfujivp.h
HDF4.1r1/hdf/fmpool/config/fmphpux.h
HDF4.1r1/hdf/fmpool/config/fmpirix32.h
HDF4.1r1/hdf/fmpool/config/fmpirix4.h
HDF4.1r1/hdf/fmpool/config/fmpirix5.h
HDF4.1r1/hdf/fmpool/config/fmpirix6.h
HDF4.1r1/hdf/fmpool/config/fmplinux.h
HDF4.1r1/hdf/fmpool/config/fmpmac.h
HDF4.1r1/hdf/fmpool/config/fmpsolaris.h
HDF4.1r1/hdf/fmpool/config/fmpsun.h
HDF4.1r1/hdf/fmpool/config/fmpt3d.h
HDF4.1r1/hdf/fmpool/config/fmpunicos.h
HDF4.1r1/hdf/fmpool/config/mh-aix
HDF4.1r1/hdf/fmpool/config/mh-alpha
HDF4.1r1/hdf/fmpool/config/mh-cm5
HDF4.1r1/hdf/fmpool/config/mh-convex
HDF4.1r1/hdf/fmpool/config/mh-decstation
HDF4.1r1/hdf/fmpool/config/mh-fbsd
HDF4.1r1/hdf/fmpool/config/mh-fujivp
HDF4.1r1/hdf/fmpool/config/mh-hpux
HDF4.1r1/hdf/fmpool/config/mh-irix32
HDF4.1r1/hdf/fmpool/config/mh-irix4
HDF4.1r1/hdf/fmpool/config/mh-irix5
HDF4.1r1/hdf/fmpool/config/mh-irix6
HDF4.1r1/hdf/fmpool/config/mh-linux
HDF4.1r1/hdf/fmpool/config/mh-mac
HDF4.1r1/hdf/fmpool/config/mh-solaris
HDF4.1r1/hdf/fmpool/config/mh-sun
HDF4.1r1/hdf/fmpool/config/mh-t3d
HDF4.1r1/hdf/fmpool/config/mh-unicos
HDF4.1r1/hdf/fmpool/Makefile.in
HDF4.1r1/hdf/fmpool/README
HDF4.1r1/hdf/fmpool/cdefs.h
HDF4.1r1/hdf/fmpool/compat.h
HDF4.1r1/hdf/fmpool/config.guess
HDF4.1r1/hdf/fmpool/config.sub
HDF4.1r1/hdf/fmpool/configure
HDF4.1r1/hdf/fmpool/configure.in
HDF4.1r1/hdf/fmpool/fmpio.3
HDF4.1r1/hdf/fmpool/fmpio.c
HDF4.1r1/hdf/fmpool/fmpio.h
HDF4.1r1/hdf/fmpool/fmpool.3
HDF4.1r1/hdf/fmpool/fmpool.c
HDF4.1r1/hdf/fmpool/fmpool.h
HDF4.1r1/hdf/fmpool/fmptypes.h
HDF4.1r1/hdf/fmpool/move-if-change
HDF4.1r1/hdf/fmpool/queue.h
HDF4.1r1/hdf/fmpool/test_fmpio.c
HDF4.1r1/hdf/fmpool/tfmpio_read.c
HDF4.1r1/hdf/fmpool/tfmpio_write.c

HDF4.1r1/hdf/jpeg/
HDF4.1r1/hdf/jpeg/config/
HDF4.1r1/hdf/jpeg/config/jaix.h
HDF4.1r1/hdf/jpeg/config/jalpha.h
HDF4.1r1/hdf/jpeg/config/jcm5.h
HDF4.1r1/hdf/jpeg/config/jconvex.h
HDF4.1r1/hdf/jpeg/config/jdec.h
HDF4.1r1/hdf/jpeg/config/jfbsd.h
HDF4.1r1/hdf/jpeg/config/jfujivp.h
HDF4.1r1/hdf/jpeg/config/jhpux.h
HDF4.1r1/hdf/jpeg/config/jirix32.h
HDF4.1r1/hdf/jpeg/config/jirix4.h
HDF4.1r1/hdf/jpeg/config/jirix5.h
HDF4.1r1/hdf/jpeg/config/jirix6.h
HDF4.1r1/hdf/jpeg/config/jlinux.h
HDF4.1r1/hdf/jpeg/config/jmac.h
HDF4.1r1/hdf/jpeg/config/jsolaris.h
HDF4.1r1/hdf/jpeg/config/jsun.h
HDF4.1r1/hdf/jpeg/config/jt3d.h
HDF4.1r1/hdf/jpeg/config/junicos.h
HDF4.1r1/hdf/jpeg/config/jwin32.h
HDF4.1r1/hdf/jpeg/config/mh-aix
HDF4.1r1/hdf/jpeg/config/mh-alpha
HDF4.1r1/hdf/jpeg/config/mh-cm5
HDF4.1r1/hdf/jpeg/config/mh-convex
HDF4.1r1/hdf/jpeg/config/mh-decstation
HDF4.1r1/hdf/jpeg/config/mh-fbsd
HDF4.1r1/hdf/jpeg/config/mh-fujivp
HDF4.1r1/hdf/jpeg/config/mh-hpux
HDF4.1r1/hdf/jpeg/config/mh-irix32
HDF4.1r1/hdf/jpeg/config/mh-irix4
HDF4.1r1/hdf/jpeg/config/mh-irix5
HDF4.1r1/hdf/jpeg/config/mh-irix6
HDF4.1r1/hdf/jpeg/config/mh-linux
HDF4.1r1/hdf/jpeg/config/mh-mac
HDF4.1r1/hdf/jpeg/config/mh-solaris
HDF4.1r1/hdf/jpeg/config/mh-sun
HDF4.1r1/hdf/jpeg/config/mh-t3d
HDF4.1r1/hdf/jpeg/config/mh-unicos
HDF4.1r1/hdf/jpeg/config/win32jpg.mak
HDF4.1r1/hdf/jpeg/Makefile.in
HDF4.1r1/hdf/jpeg/README
HDF4.1r1/hdf/jpeg/ansi2knr.1
HDF4.1r1/hdf/jpeg/ansi2knr.c
HDF4.1r1/hdf/jpeg/cderror.h
HDF4.1r1/hdf/jpeg/cdjpeg.c
HDF4.1r1/hdf/jpeg/cdjpeg.h
HDF4.1r1/hdf/jpeg/change.log
HDF4.1r1/hdf/jpeg/cjpeg.1
HDF4.1r1/hdf/jpeg/cjpeg.c
HDF4.1r1/hdf/jpeg/ckconfig.c
HDF4.1r1/hdf/jpeg/coderules.doc
HDF4.1r1/hdf/jpeg/configure.gnu
HDF4.1r1/hdf/jpeg/configure.in
HDF4.1r1/hdf/jpeg/djpeg.1
HDF4.1r1/hdf/jpeg/djpeg.c
HDF4.1r1/hdf/jpeg/example.c
HDF4.1r1/hdf/jpeg/filelist.doc

HDF4.1r1/hdf/jpeg/install.doc
HDF4.1r1/hdf/jpeg/jcapimin.c
HDF4.1r1/hdf/jpeg/jcapistd.c
HDF4.1r1/hdf/jpeg/jccoefct.c
HDF4.1r1/hdf/jpeg/jccolor.c
HDF4.1r1/hdf/jpeg/jcdctmgr.c
HDF4.1r1/hdf/jpeg/jchuff.c
HDF4.1r1/hdf/jpeg/jchuff.h
HDF4.1r1/hdf/jpeg/jcinit.c
HDF4.1r1/hdf/jpeg/jcmainct.c
HDF4.1r1/hdf/jpeg/jcmarker.c
HDF4.1r1/hdf/jpeg/jcmaster.c
HDF4.1r1/hdf/jpeg/jcomapi.c
HDF4.1r1/hdf/jpeg/jconfig.bcc
HDF4.1r1/hdf/jpeg/jconfig.cfg
HDF4.1r1/hdf/jpeg/jconfig.dj
HDF4.1r1/hdf/jpeg/jconfig.doc
HDF4.1r1/hdf/jpeg/jconfig.manx
HDF4.1r1/hdf/jpeg/jconfig.mc6
HDF4.1r1/hdf/jpeg/jconfig.sas
HDF4.1r1/hdf/jpeg/jconfig.st
HDF4.1r1/hdf/jpeg/jconfig.vms
HDF4.1r1/hdf/jpeg/jconfig.wat
HDF4.1r1/hdf/jpeg/jcparam.c
HDF4.1r1/hdf/jpeg/jcphuff.c
HDF4.1r1/hdf/jpeg/jcprepct.c
HDF4.1r1/hdf/jpeg/jcsample.c
HDF4.1r1/hdf/jpeg/jctrans.c
HDF4.1r1/hdf/jpeg/jdapimin.c
HDF4.1r1/hdf/jpeg/jdapistd.c
HDF4.1r1/hdf/jpeg/jdatadst.c
HDF4.1r1/hdf/jpeg/jdatasrc.c
HDF4.1r1/hdf/jpeg/jdcoefct.c
HDF4.1r1/hdf/jpeg/jdcolor.c
HDF4.1r1/hdf/jpeg/jdct.h
HDF4.1r1/hdf/jpeg/jddctmgr.c
HDF4.1r1/hdf/jpeg/jdhuff.c
HDF4.1r1/hdf/jpeg/jdhuff.h
HDF4.1r1/hdf/jpeg/jdinput.c
HDF4.1r1/hdf/jpeg/jdmainct.c
HDF4.1r1/hdf/jpeg/jdmarker.c
HDF4.1r1/hdf/jpeg/jdmaster.c
HDF4.1r1/hdf/jpeg/jdmerge.c
HDF4.1r1/hdf/jpeg/jdphuff.c
HDF4.1r1/hdf/jpeg/jdpostct.c
HDF4.1r1/hdf/jpeg/jdsample.c
HDF4.1r1/hdf/jpeg/jdtrans.c
HDF4.1r1/hdf/jpeg/jerror.c
HDF4.1r1/hdf/jpeg/jerror.h
HDF4.1r1/hdf/jpeg/jfdctflt.c
HDF4.1r1/hdf/jpeg/jfdctfst.c
HDF4.1r1/hdf/jpeg/jfdctint.c
HDF4.1r1/hdf/jpeg/jidctflt.c
HDF4.1r1/hdf/jpeg/jidctfst.c
HDF4.1r1/hdf/jpeg/jidctint.c
HDF4.1r1/hdf/jpeg/jidctred.c
HDF4.1r1/hdf/jpeg/jinclude.h
HDF4.1r1/hdf/jpeg/jmemansi.c

HDF4.1r1/hdf/jpeg/jmemdos.c
HDF4.1r1/hdf/jpeg/jmemdosa.asm
HDF4.1r1/hdf/jpeg/jmemmgr.c
HDF4.1r1/hdf/jpeg/jmemname.c
HDF4.1r1/hdf/jpeg/jmemnobs.c
HDF4.1r1/hdf/jpeg/jmemsys.h
HDF4.1r1/hdf/jpeg/jmorecfg.h
HDF4.1r1/hdf/jpeg/jpegint.h
HDF4.1r1/hdf/jpeg/jpeglib.68k-project.hqx
HDF4.1r1/hdf/jpeg/jpeglib.PPC-project.hqx
HDF4.1r1/hdf/jpeg/jpeglib.h
HDF4.1r1/hdf/jpeg/jpegtran.1
HDF4.1r1/hdf/jpeg/jpegtran.c
HDF4.1r1/hdf/jpeg/jquant1.c
HDF4.1r1/hdf/jpeg/jquant2.c
HDF4.1r1/hdf/jpeg/jutils.c
HDF4.1r1/hdf/jpeg/jversion.h
HDF4.1r1/hdf/jpeg/libjpeg.doc
HDF4.1r1/hdf/jpeg/makcjpeg.st
HDF4.1r1/hdf/jpeg/makdjpeg.st
HDF4.1r1/hdf/jpeg/makefile.ansi
HDF4.1r1/hdf/jpeg/rdbmp.c
HDF4.1r1/hdf/jpeg/makefile.dj
HDF4.1r1/hdf/jpeg/makefile.bcc
HDF4.1r1/hdf/jpeg/makefile.cfg
HDF4.1r1/hdf/jpeg/makefile.manx
HDF4.1r1/hdf/jpeg/makefile.mc6
HDF4.1r1/hdf/jpeg/makefile.mms
HDF4.1r1/hdf/jpeg/makefile.sas
HDF4.1r1/hdf/jpeg/makefile.unix
HDF4.1r1/hdf/jpeg/makefile.vms
HDF4.1r1/hdf/jpeg/makefile.wat
HDF4.1r1/hdf/jpeg/makljpeg.st
HDF4.1r1/hdf/jpeg/maktjpeg.st
HDF4.1r1/hdf/jpeg/makvms.opt
HDF4.1r1/hdf/jpeg/rdcolmap.c
HDF4.1r1/hdf/jpeg/rdgif.c
HDF4.1r1/hdf/jpeg/rdjpgcom.1
HDF4.1r1/hdf/jpeg/rdjpgcom.c
HDF4.1r1/hdf/jpeg/rdppm.c
HDF4.1r1/hdf/jpeg/rdrle.c
HDF4.1r1/hdf/jpeg/rdswitch.c
HDF4.1r1/hdf/jpeg/rdtarga.c
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HDF4.1r1/mfhdf/libsrc/string.c
HDF4.1r1/mfhdf/libsrc/test_cdf.sav
HDF4.1r1/mfhdf/libsrc/testout.sav
HDF4.1r1/mfhdf/libsrc/var.c

HDF4.1r1/mfhdf/libsrc/win32cdf.h
HDF4.1r1/mfhdf/libsrc/win32cdf.mak
HDF4.1r1/mfhdf/libsrc/xdrposix.c
HDF4.1r1/mfhdf/libsrc/xdrstdio.c
HDF4.1r1/mfhdf/ncdump/
HDF4.1r1/mfhdf/ncdump/Makefile.in
HDF4.1r1/mfhdf/ncdump/Makefile.in_orig
HDF4.1r1/mfhdf/ncdump/SETUPNCDUMP.COM
HDF4.1r1/mfhdf/ncdump/ctest0.mak
HDF4.1r1/mfhdf/ncdump/depend
HDF4.1r1/mfhdf/ncdump/dumplib.c
HDF4.1r1/mfhdf/ncdump/dumplib.h
HDF4.1r1/mfhdf/ncdump/make.com
HDF4.1r1/mfhdf/ncdump/msoft.mk
HDF4.1r1/mfhdf/ncdump/msofttab.c
HDF4.1r1/mfhdf/ncdump/ncdump.1
HDF4.1r1/mfhdf/ncdump/ncdump.c
HDF4.1r1/mfhdf/ncdump/ncdump.h
HDF4.1r1/mfhdf/ncdump/ncdump.lnk
HDF4.1r1/mfhdf/ncdump/ncdump.mak
HDF4.1r1/mfhdf/ncdump/test0.cdl
HDF4.1r1/mfhdf/ncdump/vardata.c
HDF4.1r1/mfhdf/ncdump/vardata.h
HDF4.1r1/mfhdf/ncgen/
HDF4.1r1/mfhdf/ncgen/Makefile.in
HDF4.1r1/mfhdf/ncgen/Makefile.in_orig
HDF4.1r1/mfhdf/ncgen/README
HDF4.1r1/mfhdf/ncgen/close.c
HDF4.1r1/mfhdf/ncgen/ctest0.mak
HDF4.1r1/mfhdf/ncgen/depend
HDF4.1r1/mfhdf/ncgen/descrip.mms
HDF4.1r1/mfhdf/ncgen/escapes.c
HDF4.1r1/mfhdf/ncgen/generate.c
HDF4.1r1/mfhdf/ncgen/generic.h
HDF4.1r1/mfhdf/ncgen/genlib.c
HDF4.1r1/mfhdf/ncgen/genlib.h
HDF4.1r1/mfhdf/ncgen/getfill.c
HDF4.1r1/mfhdf/ncgen/init.c
HDF4.1r1/mfhdf/ncgen/lexyacc.com
HDF4.1r1/mfhdf/ncgen/load.c
HDF4.1r1/mfhdf/ncgen/main.c
HDF4.1r1/mfhdf/ncgen/make.com
HDF4.1r1/mfhdf/ncgen/msoft.mk
HDF4.1r1/mfhdf/ncgen/msofttab.c
HDF4.1r1/mfhdf/ncgen/msofttab.h
HDF4.1r1/mfhdf/ncgen/msoftyy.c
HDF4.1r1/mfhdf/ncgen/ncgen.1
HDF4.1r1/mfhdf/ncgen/ncgen.h
HDF4.1r1/mfhdf/ncgen/ncgen.l
HDF4.1r1/mfhdf/ncgen/ncgen.lnk
HDF4.1r1/mfhdf/ncgen/ncgen.mak
HDF4.1r1/mfhdf/ncgen/ncgen.opt
HDF4.1r1/mfhdf/ncgen/ncgen.y
HDF4.1r1/mfhdf/ncgen/test.com
HDF4.1r1/mfhdf/ncgen/test0.cdl
HDF4.1r1/mfhdf/ncgen/test0.lnk
HDF4.1r1/mfhdf/ncgen/vms_yy.c
HDF4.1r1/mfhdf/ncgen/vmstab.c

HDF4.1r1/mfhdf/ncgen/vmstab.h
HDF4.1r1/mfhdf/nctest/
HDF4.1r1/mfhdf/nctest/Makefile.in
HDF4.1r1/mfhdf/nctest/Makefile.in_orig
HDF4.1r1/mfhdf/nctest/README
HDF4.1r1/mfhdf/nctest/add.c
HDF4.1r1/mfhdf/nctest/add.h
HDF4.1r1/mfhdf/nctest/atttests.c
HDF4.1r1/mfhdf/nctest/cdftests.c
HDF4.1r1/mfhdf/nctest/depend
HDF4.1r1/mfhdf/nctest/dimtests.c
HDF4.1r1/mfhdf/nctest/driver.c
HDF4.1r1/mfhdf/nctest/emalloc.c
HDF4.1r1/mfhdf/nctest/emalloc.h
HDF4.1r1/mfhdf/nctest/error.c
HDF4.1r1/mfhdf/nctest/error.h
HDF4.1r1/mfhdf/nctest/make.com
HDF4.1r1/mfhdf/nctest/misctest.c
HDF4.1r1/mfhdf/nctest/msoft.mk
HDF4.1r1/mfhdf/nctest/nctest.68k-project.hqx
HDF4.1r1/mfhdf/nctest/nctest.PPC-project.hqx
HDF4.1r1/mfhdf/nctest/nctest.def
HDF4.1r1/mfhdf/nctest/nctest.lnk
HDF4.1r1/mfhdf/nctest/nctest.mak
HDF4.1r1/mfhdf/nctest/rec.c
HDF4.1r1/mfhdf/nctest/slabs.c
HDF4.1r1/mfhdf/nctest/testcdf.h
HDF4.1r1/mfhdf/nctest/tests.h
HDF4.1r1/mfhdf/nctest/val.c
HDF4.1r1/mfhdf/nctest/val.h
HDF4.1r1/mfhdf/nctest/vardef.c
HDF4.1r1/mfhdf/nctest/varget.c
HDF4.1r1/mfhdf/nctest/vargetg.c
HDF4.1r1/mfhdf/nctest/varput.c
HDF4.1r1/mfhdf/nctest/varputg.c
HDF4.1r1/mfhdf/nctest/vartests.c
HDF4.1r1/mfhdf/nctest/vputget.c
HDF4.1r1/mfhdf/nctest/vputgetg.c
HDF4.1r1/mfhdf/port/
HDF4.1r1/mfhdf/port/COPYRIGHT
HDF4.1r1/mfhdf/port/CUSTOMIZE
HDF4.1r1/mfhdf/port/HISTORY
HDF4.1r1/mfhdf/port/Makefile.in
HDF4.1r1/mfhdf/port/Makefile.in_orig
HDF4.1r1/mfhdf/port/VERSION
HDF4.1r1/mfhdf/port/aclocal.m4
HDF4.1r1/mfhdf/port/configure
HDF4.1r1/mfhdf/port/configure.in
HDF4.1r1/mfhdf/port/depend
HDF4.1r1/mfhdf/port/mast_mk.in
HDF4.1r1/mfhdf/port/master.mk.in
HDF4.1r1/mfhdf/port/uddummy.c
HDF4.1r1/mfhdf/port/udposix.h.in
HDF4.1r1/mfhdf/port/udposixh.in
HDF4.1r1/mfhdf/port/which
HDF4.1r1/mfhdf/util/
HDF4.1r1/mfhdf/util/getopt.c
HDF4.1r1/mfhdf/util/make.com

HDF4.1r1/mfhdf/util/msoft.mk
HDF4.1r1/mfhdf/util/win32utl.mak
HDF4.1r1/mfhdf/xdr/
HDF4.1r1/mfhdf/xdr/Makefile.in
HDF4.1r1/mfhdf/xdr/Makefile.in_orig
HDF4.1r1/mfhdf/xdr/NOTICE.h
HDF4.1r1/mfhdf/xdr/README
HDF4.1r1/mfhdf/xdr/byteordr.c
HDF4.1r1/mfhdf/xdr/depend
HDF4.1r1/mfhdf/xdr/descrip.mms
HDF4.1r1/mfhdf/xdr/htonl.mar
HDF4.1r1/mfhdf/xdr/make.com
HDF4.1r1/mfhdf/xdr/msoft.mk
HDF4.1r1/mfhdf/xdr/ntohl.mar
HDF4.1r1/mfhdf/xdr/test_xdr.sav
HDF4.1r1/mfhdf/xdr/testout.sav
HDF4.1r1/mfhdf/xdr/types.h
HDF4.1r1/mfhdf/xdr/win32xdr.mak
HDF4.1r1/mfhdf/xdr/xdr.c
HDF4.1r1/mfhdf/xdr/xdr.h
HDF4.1r1/mfhdf/xdr/xdrarray.c
HDF4.1r1/mfhdf/xdr/xdrfloat.c
HDF4.1r1/mfhdf/xdr/xdrlib.68k-project.hqx
HDF4.1r1/mfhdf/xdr/xdrlib.PPC-project.hqx
HDF4.1r1/mfhdf/xdr/xdrstdio.c
HDF4.1r1/mfhdf/xdr/xdrtest.68k-project.hqx
HDF4.1r1/mfhdf/xdr/xdrtest.PPC-project.hqx
HDF4.1r1/mfhdf/xdr/xdrtest.c
HDF4.1r1/mfhdf/xdr/xdrtest.mak
HDF4.1r1/mfhdf/xdr/xdrtest.opt
HDF4.1r1/release_notes/
HDF4.1r1/release_notes/Examples_CM5/
HDF4.1r1/release_notes/Examples_CM5/Fexample.fcm
HDF4.1r1/release_notes/Examples_CM5/Makefile
HDF4.1r1/release_notes/Examples_CM5/example.cs
HDF4.1r1/release_notes/ABOUT_4.1r1
HDF4.1r1/release_notes/Fortran_APIs.txt
HDF4.1r1/release_notes/bugs_fixed.txt
HDF4.1r1/release_notes/compile.txt
HDF4.1r1/release_notes/install_winNT.txt
HDF4.1r1/release_notes/parallel_CM5.txt
HDF4.1r1/release_notes/sd_chunk_examples.txt
HDF4.1r1/release_notes/vattr.txt

4.4 Documentation

The document provided with this release is:

Document Number:	333-CD-004-002
Title:	Release B.0 SCF Toolkit Users Guide for the ECS Project
Delivery Source:	Hardcopy, WEB

4.5 Archive Tape

The following magnetic tape is used to archive the delivered baseline configuration of the developed software.

904-PR-036-003

Label: ECS RELB TOOLKIT 5.2.1 v1.00
Distribution Date: Oct 29, 1997
>>> 3.0gbyte format (low density) <<<
HDF4.1r1.tar.Z
SDPTK5.2.1v1.00_TestDrivers.README
SDPTK5.2.1v1.00_TestDrivers.tar.Z
SDPTK5.1v1.00-Aadata.README
SDPTK5.1v1.00-AAdata.tar.Z
SDPTK5.2.1v1.00.README
SDPTK5.2.1v1.00.tar.Z

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5. Non-Conformance Status

5.1 Known Problems with Release B.0 Toolkit 5.2.1

This section contains the list of problems closed (Section 5.2) and known problems (Section 5.3) as of 10/28/97 in the Release B.0 Toolkit 5.2.1 Version 1.00 delivery. These problems were found and recorded during unit and integration testing or discovered by users of the previous version of the Toolkit and captured in the formal problem tracking system, Distributed Defect Tracking System (DDTS). The DDTS system generated the attached list of "closed" NCRs. This list has been reviewed by HITC management and Release Toolkit is considered to be acceptable for delivery at this time. The list includes the NCR ID, Title, Description, and Status. DDTS Problem Severity Definitions, on a 1-5 scale, are defined as follows:

1 Catastophic and unrecoverable!
Example: system crash or lost user data.

2 Severely broken and no workaround.
Example: can't use major product function.

3 A defect that needs to be fixed but there is a workaround.
Example: user data must be modified to work.

4 A defect that causes small impact. Easy to recover or workaround.
Example: error messages aren't very clear.

5 Trivial defect or enhancement request.
Example: bad layout or misuse of grammar in manual.

5.1.1 Installed Changes

This VDD addresses the additional capabilites and modifications to problems found in the Release B.0 Toolkit 5.2 software.

- Addition of interpolation functionality for the DEM tools
- Update of Metadata tools to conform with the B0 changes to the data model
- Perform bug fixes
- Update of Installation scripts to conform to current SGI compiler.
- Conform to ODL standards regarding UTC date and time
- Conform with HDF-EOS version 2.0
- Conform with USNO data leap seconds-they do not recommend or support predicted leap seconds
- Conform with latest EDOS ICD processing Level 0 files.

- Update of three freeware packages: udunits, Gctp, and cfortran.h to the latest version.
- Update to support C++ access to C routines even though this is not a mandatory requirement.

The status of the NCRs corrected for this release is included in section 5.2. This NCR report reflects the information obtained from DDTS on October xx, 1997. To obtain a detailed description of the NCRs, the DDTS system can be accessed from the following WEB page:

http://newsroom.gsfc.nasa.gov/ddts/

5.2 Release B.0 Toolkit 5.2.1 Non-Conformance Reports (Close Status)

The following Toolkit open problems, listed in numerical order by severity were closed with the Release B.0 Toolkit 5.2.1 delivery:

NCR ID: **ECSed09375**

Title: PGS_EPH_GetEphMet core dumps on all platforms

Severity: 1

Description: PGS_EPH_GetEphMet core dumps on all platforms when the PGS_EPH_GetEphMet_Driver is run. Debugging efforts are underway to determine whether this is a driver or tool problem. If determined that this is a driver problem, the severity of this NCR will be downgraded.

Resolution: The line:

totalOrbits+1);

was modified to:

(totalOrbits+1)*sizeof(PGSt_ephemMetadata));

This ensures that the appropriate amount of memory is allocated for the array of structures that this memory area is being used to store.

NCR ID: **ECSed07338**

Title: ProductionDateTime not set when write .met file

Severity: 2

Description: When Ingest calls ..PGS_MET_WRITE to write the populated MCF file (.met) the PRODUCTIONDATETIME field is not being set.

Resolution: Fixed the code for setting up the attribute ProductionDateTime by calling the UNIX system time. It is now also available when writing the Meta data to an ASCII file using this function in which the mdHandle argument, the first input parameter of the function PGS_MET_Write() is not the group name of INVENTORYMETADATA.

file changed: /ecs/formal/TOOLKIT/src/MET/tools/PGS_MET_Write.c

NCR ID: **ECSed07731**

Title: Inputpointer Attribute length not sufficient

Severity: 2

Description: Inputpointer attribute length was not long enough. During SSI&T input file names are concatenated together to form the input pointer. Only a few input files made this extremely large and caused a toolkit error.

Langley TTID: ld000175

Resolution: The PGSd_PC_UREF_LENGTH_MAX definition in PGS_PC.h & PGS_PC.f has been increased from 150 to 255.

NCR ID: **ECSed07732**

Title: Temporary File Name Creation Disagrees with PDPS Implementation

Severity: 2

Description: There is an error in function PGS_IO_Gen_Temp_Name() where the actual naming of files occurs. To create a unique name within a DAAC, the local IP address of the science computing platform is used along with time/date stamp and the production run identifier. During development of this software, an assumption was made as to the format of these IP addresses. The assumption was that the last 2 tokens were fixed at 2 characters apiece. This is incorrect since it does not agree with the internet protocol. In actuality, all of the tokens that represent an IP address are variable from 1 to 3 characters (1 to 254 decimal).

Another component of the temporary file name is the Data Processing Request (DPR) Id. This Id maps to the instance of a PGE run and to the PGE version ID itself. Unfortunately, at the time of TK development and documentation, this value was to have a limit of 8 numeric characters; we believe that this limit was reached based on the number of jobs which would be generated per day, per site. Today, we understand that this value can be as large as 27 characters and contain collection time information (10 characters in width) in addition to the PGE version id (which is 17 characters in width). This also is a potential problem for the Toolkit I/O tools which use array sizes of 10 for the Production Run ID.

These early design assumptions do not agree with the current implementation of the Testbed, which generates the larger DPR id, and forces the use of correct IP addresses within the PCF. This mismatch between the Toolkit and the PDPS can result in the PGE creating temporary files which it cannot subsequently read. Eventhough the file may appear to have been created, and the filename agrees with that reported in the PCF (from visual inspection), the filename may actually contain non-printable characters as a result of the Toolkit exceeding some array bounds.

Resolution: 1) The Production Run Id will be dropped as a component of the file name; this component does not increase the uniqueness of the file and was originally introduced to provide for additional traceability to the process which created the file. Since this information is already captured in the Failed PGE diagnostic tar file, where the temporary files would be stored, it was considered to be redundant and unnecessarily increased the width of the file name; originally 8 characters in width, the DPR identifier was increased to 27 to provide more information to the production operator.

2) The full decimal encoded form of the IP address will be used (sans the "." delimiters, but padded with 0 within each byte field)

So, for example, 198.118.192.17 will become 198118192017. If this were reduced

3) Also, to make analysis of temporary I/O problems easier, the width of all temporary file names will be fixed at 31 characters.

Final note: in actuality, the IP address is no longer necessary, as long a temporary intermediate files (i.e., those whose names are generated by the Toolkit, not "interim" files which are defined prior to runtime) will NEVER be inserted to the Data Server as discrete granules; the original design concern was that intermediate file names would clash in the archive. However, for the sake of evolvability, should the ECS system ever support archival of temporary data types, the Toolkit will continue to incorporate the IP address of the science computing platform (note that at the SCF, any address may be used as long as it conforms to the internet standard; at the DAAC, the address is retrieved from the system by the Toolkit).

NCR ID: **ECSed07939**

Title: Simulator must be altered to produce different attitude rates

Severity: 2

Description: Per decision of Larry Klein at request of Dan Marinelli, the spacecraft attitude rate variables will now stand for inertial rates, not rates in the orbital system. (For a nadir looking spacecraft, pitch will run a constant decrease at the orbital rate). The simulator now produces 0 rates for such spacecraft.

This fix is itself a dependency on changes in DPREP and the documentation for the attitude tool PGS_EPH_EphemAtt(). Because the change will occur in DPREP, the tool PGS_EPH_EphemAtt() itself will not change - only the documentation and the simulator need to change.

Resolution: The function PGS_EPH_TransformBodyRates() has been created to handle the required transformation (see attachment "Analysis").

Body rates generated by the orbit simulation utility "orbsim" will now represent inertial rates projected on the body axes (rates WERE orbital rates).

NCR ID: **ECSed08864**

Title: bug in utcpole.dat update program

Severity: 2

Description: The software that updates the Toolkit file utcpole.dat has a bug. When updating the file, if the date of the USNO source file contains a day of month less than 10 the header of the resulting utcpole.dat file is 1 character short of what the Toolkit expects it to be.

Since the Toolkit searches through the file by byte offset, this renders the file useless to the Toolkit.

Resolution: The file header was coming out 1 character short when the day of month was single digit. This was due to the code's having too short a string of blanks imbedded in it and used to pad the date and time. The string was made larger by several blank characters, which fixed the problem.

Additional code was written to check the lengths of the two header lines and abort the run with a diagnostic to the log file in case of error.

The first line is 99 characters including the newline, and the first two together, the entire header, 168, including 2 newlines.

NCR ID: **ECSed08906**

Title: Error in SMF logging control

Severity: 2

Description: Users cannot disable logging of PGSDEM_ status messages via the logging control mechanism of the Process Control File. Nor can they disable any of their own status messages (on an individual status message basis).

e.g., the following line in the Process Control File is ineffectual:

10119|Disabled status code mnemonic list|PGSDEM_M_FILLVALUE_INCLUDED

This entry should prevent the status message PGSDEM_M_FILLVALUE_INCLUDED from appearing in any Toolkit log files, but it doesn't work. It seems only to be broken in the case of DEM tools; all other Toolkit tool groups can have their various error messages disabled in this way.

Resolution: Fixed code in PGS_SMF_DecodeCode to recognize the Toolkit group DEM. This allows the Toolkit to do a lookup on DEM status code mnemonics. This function PGS_SMF_DecodeCode is in the file PGS_SMF.c.

Added code to the function PGS_SMF_InitializeLogging() to allow users to disable logging of SMF status codes by providing the actual (numeric) code (rather than just the mnemonic as was previously the case).

NCR ID: **ECSed08907**

Title: PGS_PC_Shell.sh ignores twos-compliments

Severity: 2

Description: PGS_PC_Shell.sh ignores twos-compliments of various error codes returned by PGS_PC_InitCom. For example a return status of 247 indicates that shared memory was not properly initialized and in some cases this should terminate PGS_PC_Shell.sh before it attempts to invoke a PGE. On some platforms, however, a value of 247 returned by an executable will be treated by the shell as -9. PGS_PC_Shell.sh is not checking for a value of -9, only the value of 247. It should check for both values when making a decision on what action to take based on the return code from PGS_PC_InitCom.

Resolution: The script PGS_PC_Shell.sh now checks for both the usual expected return codes and the twos-compliment of those return codes, before deciding what action to take following the call to PGS_PC_InitCom.

NCR ID: **ECSed09005**

Title: Inputpointer Attribute length not sufficient

Severity: 2

Description: Inputpointer attribute length was not long enough. During SSI&T input file names are concatenated together to form the input pointer. Only a few input files made this extremely large and caused a toolkit error.

Langley TTID: ld000175

Resolution: The PGSd_PC_UREF_LENGTH_MAX definition in PGS_PC.h & PGS_PC.f has been increased from 150 to 255.

NCR ID: **ECSed09006**

Title: Temporary File Name Creation Disagrees with PDPS Implementation

Severity: 2

Description: There is an error in function PGS_IO_Gen_Temp_Name() where the actual naming of files occurs. To create a unique name within a DAAC, the local IP address of the science computing platform is used along with time/date stamp and the production run identifier. During development of this software, an assumption was made as to the format of these IP addresses. The assumption was that the last 2 tokens were fixed at 2 characters apiece. This is incorrect since it does not agree with the internet protocol. In actuality, all of the tokens that represent an IP address are variable from 1 to 3 characters (1 to 254 decimal).

Another component of the temporary file name is the Data Processing Request (DPR) Id. This Id maps to the instance of a PGE run and to the PGE version ID

itself. Unfortunately, at the time of TK development and documentation, this value was to have a limit of 8 numeric characters; we believe that this limit was reached based on the number of jobs which would be generated per day, per site. Today, we understand that this value can be as large as 27 characters and contain collection time information (10 characters in width) in addition to the PGE version id (which is 17 characters in width). This also is a potential problem for the Toolkit I/O tools which use array sizes of 10 for the Production Run ID.

These early design assumptions do not agree with the current implementation of the Testbed, which generates the larger DPR id, and forces the use of correct IP addresses within the PCF. This mismatch between the Toolkit and the PDPS can result in the PGE creating temporary files which it cannot subsequently read. Eventhough the file may appear to have been created, and the filename agrees with that reported in the PCF (from visual inspection), the filename may actually contain non-printable characters as a result of the Toolkit exceeding some array bounds.

Resolution: The following modifications are required to correct the problem with temporary file name generation:

1) The Production Run Id will be dropped as a component of the file name; this component does not increase the uniqueness of the file and was originally introduced to provide for additional traceability to the process which created the file. Since this information is already captured in the Failed PGE diagnostic tar file, where the temporary files would be stored, it was considered to be redundant and unnecessarily increased the width of the file name; originally 8 characters in width, the DPR identifier was increased to 27 to provide more information to the production operator.

2) The full decimal encoded form of the IP address will be used (sans the "." delimiters, but padded with 0 within each byte field). So, for example, 198.118.192.17 will become 198118192017 if this were reduced.

3) Also, to make analysis of temporary I/O problems easier, the width of all temporary file names will be fixed at 31 characters.

Final note: in actuality, the IP address is no longer necessary, as long a temporary intermediate files (i.e., those whose names are generated by the Toolkit, not "interim" files which are defined prior to runtime) will NEVER be inserted to the Data Server as discrete granules; the original design concern was that intermediate file names would clash in the archive. However, for the sake of evolvability, should the ECS system ever support archival of temporary data types, the Toolkit will continue to incorporate the IP address of the science computing platform (note that at the SCF, any address may be used as long as it conforms to the internet standard; at the DAAC, the address is retrieved from the system by the Toolkit).

NCR ID: **ECSed09045**

Title: Error parsing EDOS L0 construction record

Severity: 2

Description: The toolkit fails to read EDOS L0 files (i.e. recently acquired files that actually were produced by EDOS). It seems to be failing while parsing the construction record.

Resolution: The Toolkit source code was modified to read item 25-2 of the Construction Record as 40 bytes rather than 36 bytes.

NCR ID: **ECSed09121**

Title: Toolkit MET tool core dumps when retrieving a string value from containe

Severity: 2

Description: The GetPCAttr causes a core dump when attempting to retrieve a string value (which is actually a double value) from a container attribute in an ASCII file. This also occurs for the reverse case. The test driver input is as follows:

operation: getpc_string

file number: 10284

version # : 1

HDF attribute: GRANULE_HDFOUT_5724

Attribute name: GRINGPOINTLATITUDE.1

operation: getpc_double

file number: 10284

version #: 1

HDF attribute: GRANULE_HDFOUT_5724

Attribute name: AutomaticQualityFlag.1

Resolution: Tester should input proper operation for PGS_MET_GetPCAttr to retrieve theattribute, such as:

1 Retrieving of the attribute contains the double type of value from the metadat file, the operation of getpc_double should be set up

2. Retrieving of the attribute contains the string type of value from the metadata file, the operation of getpc_string shoulde be set up

NCR ID: **ECSed09168**

Title: Error on install on the SGI (orbsim.c)

Severity: 2

Description: When attempting to install the toolkit on the SGI in any of the modes, the following error occurs when building the additional utilities:

build the orbit simulator & s/c ephemeris check utilities...

cc -32 -c -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include PGS_EPH_attOrbSim.c -o sgi/PGS_EPH_attOrbSim.o

cc -32 -c -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include PGS_EPH_attitudeNoise.c -o sgi/PGS_EPH_attitudeNoise.o

cc -32 -c -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include PGS_EPH_getQuats.c -o sgi/PGS_EPH_getQuats.o

cc -32 -c -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include PGS_EPH_matrixMultiply.c -o sgi/PGS_EPH_matrixMultiply.o

cc -32 -c -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include PGS_EPH_orbSim.c -o sgi/PGS_EPH_orbSim.o

cc -32 -c -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include PGS_EPH_orbitalElements.c -o sgi/PGS_EPH_orbitalElements.o

cc -32 -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include -L/data3/toolkit1/scf_toolkit_f77/TOOLKIT/lib/sgi sgi/PGS_EPH_attOrbSim.o sgi/PGS_EPH_attitudeNoise.o sgi/PGS_EPH_getQuats.o sgi/PGS_EPH_matrixMultiply.o sgi/PGS_EPH_orbSim.o sgi/PGS_EPH_orbitalElements.o orbsim.c -o /data3/toolkit1/scf_toolkit_f77/TOOLKIT/bin/sgi/orbsim -lPGSTK -lm

cfe: Error: orbsim.c, line 1100: 'M_PI' undefined; reoccurrences will not be reported.

time += 2.0*(M_PI/data[8]);

----------^

*** Error code 1 (bu21)

*** Error code 1 (bu21)

/bin/rm -rf sgi core *.o

Build_ID: RELB_TOOLKIT_UNOFFICIAL_092397.tar.Z

Machine_ID: lasher

Resolution: The following lines of code were added to the file orbsim.c:

```
#ifndef M_PI
#define M_PI    3.14159265358979323846
#endif
```

This ensures the text symbol M_PI is defined in cases where it has not previously been defined (e.g.) by a standard C header.

NCR ID: **ECSed09392**

Title: Unresolved text symbol error while installing on the SGI (lasher)

Severity: 2

Description: The following error message is reported when trying to install the Toolkit on lasher in all modes:

```
cc -32 -O -xansi -D_POSIX_SOURCE -DIRIX -I/data3/toolkit1/scf_toolkit_f77/TOOLKIT/include -L/data3/toolkit1/scf_toolkit_f77/TOOLKIT/lib/sgi sgi/PGS_EPH_TransformBodyRates.o sgi/PGS_EPH_attOrbSim.o sgi/PGS_EPH_attitudeNoise.o sgi/PGS_EPH_getQuats.o sgi/PGS_EPH_matrixMultiply.o sgi/PGS_EPH_orbSim.o sgi/PGS_EPH_orbitalElements.o orbsim.c -o /data3/toolkit1/scf_toolkit_f77/TOOLKIT/bin/sgi/orbsim -lPGSTK -lm

ld: ERROR 33: Unresolved text symbol "PGS_CSC_BorkowskiGeo" -- 1st referenced by /data3/toolkit1/scf_toolkit_f77/TOOLKIT/lib/sgi/libPGSTK.a(CSCECRtoGEO.o).

ld: INFO 60: Output file removed because of error.

*** Error code 1 (bu21)

*** Error code 1 (bu21)

    /bin/rm -rf sgi core *.o
```

Error occurred while attempting to compile toolkit utilities. The following tool groups had compilation errors:

EPH

Error occurred while attempting to clean up toolkit object files

INSTALL-Toolkit completed with errors at Tue Oct 14 10:40:11 EDT 1997

INSTALL: Error: The Toolkit Installation Script failed or had errors. SDP Toolkit installation cancelled

Resolution: This problem only manifestied during a Toolkit installation. The apparent problem was that the SGI would build the tool group CBP to the library libPGSTK.a and then immediately start compiling the CSC tool group. On occasion (for whatever reason). This would cause the first one or two files compiled in the CSC tools to have a system time EARLIER than the library file libPGSTK.a EVEN THOUGH that file was last modified BEFORE any files were compiled in the CSC tool group and therefore SHOULD have the earlier modification (system) time.

The problem was worked around by altering the toolkit library archiving script "mkpgslib" to sleep for one second after adding a batch of object file to the library. This seems to give the system enough time to ensure that it does not confuse the time of library file modification and the time of the creation of any of the object files from the follow on tool group which are created immediately following the library update.

NCR ID: **ECSed09442**

Title: PGS_MET_GetPCAttr core dumps on SGI (32-bit modes), HP, and DEC

Severity: 2

Description: The MET tool PGS_MET_GetPCAttr was found to be the cause of the core dumps on all 32-bit modes on the SGI and on the HP and DEC platforms. Development has already looked into the problem and a fix has been informally given to test.

Resolution: Changed the variable zone_hours, Zone hours from GMT (-12 - +12), that defined as a data type of long to be the data type of short.

NCR ID: **ECSed09512**

Title: MET tools return error instead of success on HP and SUN5 platform

Severity: 2

Description: On the HP and SUN5 platforms only, the MET tools return an error code instead of a success as follows where "<" represents actual output and ">" represents expected output (development has been given all data needed):

HP:

PGS_MET_Driver_c

5504c5504

< Toolkit return value:110162

> Toolkit return value:0

5506c5506

< ERROR: PGSMET_E_NULL_PARAMETER: The requested Parameter INSTRUMENT_NAME is a

NULL value

> PGS_S_SUCCESS: SUCCESSFUL operation

5507a5508,5522

>

> --Toolkit Input Parameters after return--

>

> File Number : 5721

> Attribute Name : INSTRUMENT_NAME

> Version Number : 1

> HDF Attribute Name : MCF_HDFOUT_5721_5

>

> --Toolkit Output Parameters--

>

> Attribute Value #1 : ASTER

> Attribute Value #2 :

> Attribute Value #3 :

> Attribute Value #4 :

> Attribute Value #5 :

PGS_MET_Driver_c done

SUN5:

PGS_MET_Driver_c

5678c5678

< Toolkit return value:110106

> Toolkit return value:0

5680c5680

< ERROR: PGSMET_E_FILETOODL_ERR: Unable to convert HDF attribute into an ODL f

ormat

> PGS_S_SUCCESS: SUCCESSFUL operation

5682a5683

> --Toolkit Input Parameters after return--

5683a5685,5698

> File Number : 5728

> Attribute Name : EVENT_FILTER_MODE

> Version Number : 1

> HDF Attribute Name : LIS_USER_SETTINGS

>

> --Toolkit Output Parameters--

>

> Attribute Value #1 : MODE3

> Attribute Value #2 :

> Attribute Value #3 :

> Attribute Value #4 :

> Attribute Value #5 :

>

>

PGS_MET_Driver_c done

Resolution: There is no problem with the Toolkit, after recompiling the MET library, the same output were generated in TestDriver on SUN5 and HP.

NCR ID: **ECSed06175**

Title: GCT is having minor differences on the 64bit version

Severity: 3

Description: On the 64bit version (f77 and f90) differences are appearing for the GCT tools in the proj operation.

Resolution: A conditional compilation condition was added to the code so that on the SGI the C type "int" is used to read data from disk. This ensures (for the moment) that the data is read as 4-byte quantities (see attachment "Analysis").

NCR ID: **ECSed06176**

Title: The AA tool dcw is returning diff. values on the 64 bit version

Severity: 3

Description: The AA dcw driver is having differences on the 64 bit version. All the other platforms are okay.

Resolution: DEVELOPER: The output is same as sample output after testing on the 64 bit version of Lasher and Relbsgi

TESTER: The problem no longer exists. Ran the PGS_AA_dcw_Driver in 64bit mode on relbsgi and does not give any differences.

NCR ID: **ECSed06190**

Title: Diff in SHM MEM tool on Power Challenge only

Severity: 3

Description: The SHM_MEM tools is returning a different error message on the Power Challenge 32bit and 64bit than the other platforms.

Resolution: Using the debugger it was verified that the errno is being set after the call to shmget (UNIX call to initialize shared memory). The errno being set is 22 which corresponds to EINVAL.

From the SGI man page for shmget:

> EINVAL size is less than the system-imposed minimum or greater than the system-imposed maximum.

This is exactly the error condition being tested for and the error is exactly what one would expect.

Unable to reproduce error as stated in attachment "Problem".

NCR ID: **ECSed06191**

Title: On new32bit f90 getting a bus error for the IO tools

Severity: 3

Description: On the new32bit f90 version only getting a core dump (bus error) for the IO_Driver. It is running input file 2 through the PGS_Perm_IO_Driver_f90

Resolution: Modified PGS_Perm_IO_Driver_f90.f as follows:

changed line 180 from "character msg*240" to "character msg*340"

NCR ID: **ECSed06193**

Title: SCtimetoUTC time and UTCtoSCtime having diffs. on power challenge

Severity: 3

Description: There are differences in the SCtime to UT and the UT to SCtime drivers in the f77 version of the 64bit and new32bit on the power challenge this in on lasher at

/data3/ecs/OPS/CUSTOM/bin/scf_64f77/TOOLKIT/test/test_drivers/TD

Resolution: This is a driver problem, not a Toolkit problem. The values returned by the toolkit seem to be OK. The output of the driver is inconsistant with the sample output. The problem seems to be in formatting HEXIDECIMAL numbers for output.

Suggest replacing syntax like:

ichar(scTime(1:1))

with:

scTime(1:1)

in write statements in test drivers.

Note: There will be another NCR written against the driver.

NCR ID: **ECSed06666**

Title: Different results for AA_dem_interger on the DEC

Severity: 3

Description: On the DEC only different results are occurring for the AA_dem_interger points just outside of corner test

Resolution: Added code that calls the function memset() to assign the value of 0 for the point is not located in the DEM

NCR ID: **ECSed06668**

Title: The HP is experienceing different results for 2 AA_dem tests

Severity: 3

Description: The HP is getting different results for 2 AA_dem tests and all the other platforms are getting the expected output

Resolution: Added code that calls the function memset() to assign the value of 0 for the point is not located in the DEM

NCR ID: **ECSed07259**

Title: MODIS PGE unable to access Gring metadata attributes

Severity: 3

Description: The Toolkit does not allow the user to retrieve a container attribute value from an ASCII Metadata file.

Resolution: Changed code to enable the user to retrieve the container attribute value from an ASCII Metadata file. The problem was the original code did not provide the procedure to check whether the attribute is a class attribute or not files changed:

$PGSHOME/src/MET/tools/PGS_MET_GetPCAttr.c

$PGSHOME/src/MET/tools/PGS_MET_GetPCAttrF.c

NCR ID: ECSed07260

Title: INSTALL-Toolkit Fails for SGI f90 v7.1

Severity: 3

Description: The INSTALL-Toolkit script for the v5.1.1 SDP Toolkit fails when run using the SGI f90 v7.1 compiler. The script verifies the compiler type (NAG or SGI f90) by executing the f90 command wihtout arguments. A switch statement then uses the error message returned by the compiler to determine the compiler type.

The message returned by the v7.1 f90 compiler is two lines, and results in a "buf" variable value of "WARNING f90". This text string is not included in the switch statement, and so the INSTALL-Toolkit procedure thinks that the wrong compiler has been specified.

A case statement for the new string has been added locally, but needs to be added to the delivered SDP Toolkit package.

Resolution: The toolkit install script has been modified to set the SGI_ABI environment variable temporarily before testing the f90 compiler. This should ensure that even for users who have not configured their f90 compiler to default to allowed binary types (i.e. n32 or 64 bit) there will not be a problem running the Toolkit installation scripts.

NCR ID: ECSed07282

Title: Toolkit does not support ODL standard regarding UTC date and time

Severity: 3

Description: The Toolkit could not retrieve attribute data values that are in the ODL UTC DATETIME format without double quotes. This does not match the ODL standard

Resolution: Added code enabling the datetime data that is not in the type of string but in the type of UTC DATETIME format without double quotes surrounding it can be retrieved from memory files changed:

$PGSHOME/src/MET/tools/PGS_MET_GetSetAttr.c

$PGSHOME/src/MET/tools/PGS_MET_GetSetAttrF.c

$PGSHOME/src/MET/tools/PGS_MET_GetPCAttr.c

$PGSHOME/src/MET/tools/PGS_MET_GetPCAttrF.c

$PGSHOME/src/CUC/ODL/cvtvalue.c

NCR ID: **ECSed07283**

Title: Class value in group is not consistent with class value in object sectio

Severity: 3

Description: For the GRing Group, the Class = "1" parameter is not being set by toolkit

More generally: class value in the Group section is not consistent with the class value in the Object section

Resolution: Fixed code in order the class value in Group can be consistent with the class value of Object in the Metadata file

file changed: /ecs/formal/TOOLKIT/src/MET/support/PGS_MET_CheckAttr.c

NCR ID: **ECSed07382**

Title: Tookit5.2 can not pre-set attributes within containers

Severity: 3

Description: I've run into a case where the SDP TK 5.2 PGS_MET tools are functioning as designed, but where I believe the design needs to be changed.

Currently, the PGS_MET routines do not allow for granule level attributes within an ODL Container object to be hard coded in an MCF. Any hard coded attribute values within ODL Containers (i.e., where Data_Location ="MCF" and Value is provided) are currently ignored. If Data_Location = "MCF" is encountered within a Container, the current design is for the SDP TK to change "MCF" to "PGE" and ignore the specified Value. The SDP TK PGS_MET design needs to be modified to allow Data_Location + "MCF" within ODL Container objects.

This issue came up in RCC testing using a Landsat-7 ESDT descriptor file and MCF using a GRing definition having pre-set Values for ExclusionGRingFlag and GRingPointSequenceNo. I carefully read through the SDP TK 5.2 Users Guide and I couldn't find any comment that users should not use Data_Location = "MCF" within ODL Containers. It is very possible that Instrument Teams will use SDP TK 5.2 with preset Values within Containers, get error messages and report it to 'pgstlkit' as a bug. ITs should be allowed to pre-set sme attribute values within ODL Containers. Making a SDP TK mod to allow for this will reduce the amount of PGS_MET_SetAttr calls the science software must make. This issue affects the following B.0 Data Model classes which may appear within Version 2

science software MCFs: GPolygon/GRing, MeasuredParameter, OrbitCalculatedSpatialDomain, Review, SensorCharacteristic, AssociatedPlatformInstrumentSensor, which all contain at least one attribute that an Instrument Team would be justified in thinking they could be pre-set.

The current SDP TK PGS_MET already allows for MCF hard coding of attribute values if the attribute is not within an ODL Container. Examples of this are ShortName and VersionID which are pre-set in the ESDT descriptor (from which the MCF is created) and these attributes and their values do appear in the resulting *.met files.

I'm also not even certain whether this current design has been implemented correctly for attributes within ODL Containers, since in one RCC test GRing attributes which were hardocded in the MCF did not even show up at all in the resulting *.met file (the current design implies they'd appear with Value = "NOT SET").

Resolution: Changed code to recognize the class value that is not only the character "M", PGSd_MET_MULTIPLE_FLAG, but also can be any numerical number, such as 1, 2, 3, or 11 that has already pre-set in the MCF file. SAME AS NCR# 7385.

NCR ID: **ECSed07385**

Title: Tookit5.2 can not pre-set attributes within containers

Severity: 3

Description: The SDP TK 5.2 PGS_MET tools are functioning as designed, but the design needs to be changed.

Currently, the PGS_MET routines do not allow for granule level attributes within an ODL Container object to be hard coded in an MCF. Any hard coded attribute values within ODL Containers (i.e. where Data_Location ="MCF" and Value is provided) are currently ignored. If Data_Location = "MCF" is encountered within a Container, the current design is for the SDP TK to change "MCF" to "PGE" and ignore the specified Value. The SDP TK PGS_MET design needs to be modified to allow Data_Location + "MCF" within ODL Container objects.

This issue came up in RCC testing using a Landsat-7 ESDT descriptor file and MCF using a GRing definition having pre-set Values for ExclusionGRingFlag and GRingPointSequenceNo. I carefully read through the SDP TK 5.2 Users Guide and I couldn't find any comment that users should not use Data_Location = "MCF" within ODL Containers. It is very possible that Instrument Teams will use SDP TK 5.2 with preset Values within Containers, get error messages and report it to 'pgstlkit' as a bug. ITs should be allowed to pre-set sme attribute values within ODL Containers. Making a SDP TK mod to allow for this will reduce the amount of PGS_MET_SetAttr calls the science software must make. This issue affects the following B.0 Data Model classes which may appear within Version 2 science software MCFs: GPolygon/GRing, MeasuredParameter, OrbitCalculatedSpatialDomain, Review, SensorCharacteristic,

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The current SDP TK PGS_MET already allows for MCF hard coding of attribute values if the attribute is not within an ODL Container. Examples of this are ShortName and VersionID which are pre-set in the ESDT descriptor (from which the MCF is created) and these attributes and their values do appear in the resulting *.met files.

I'm also not even certain whether this current design has been implemented correctly for attributes within ODL Containers, since in one RCC test GRing attributes which were hardocded in the MCF did not even show up at all in the resulting *.met file (the current design implies they'd appear with Value = "NOT SET").

Resolution: Changed code to recognize the class value that is not only the character "M", PGSd_MET_MULTIPLE_FLAG, but also can be any numerical number, such as 1, 2, 3, or 11 that has already pre-set in the MCF file.

NCR ID: **ECSed07451**

Title: Extracting DEM data is very inefficient

Severity: 3

Description: Informed by MODIS that speed of extracting data is prohibitively slow. Inefficiency mostly concerns tool PGS_DEM_GetRegion.

Resolution: Added the function PGS_DEM_AccessFile() to DEM tools. This function opens, closes and keeps a record of the staged files. It's primary purpose is to improve the efficiency of the DEM tools. Previously, everytime a file was accessed, it needed to be opened and the GRID needed to be attached. This function allows these files to be opened and the GRIDS to be attached only once in the DEM functionality. There are three modes, or commands, which regulate the functionality of PGS_DEM_AccessFile:

PGSd_DEM_ACCESS -- In this case, the particular file has been opened and the GRID has been attached outside of this function. The hdfID and gdID's already have been assigned to the particular subgrid of the subset. In this case, the function merely records the file specific info.

PGSd_DEM_OPEN -- This function determines if a file has been opened and attached. If it has, it assigns the file info to the subgrid. If the file has not been opened, it is opened, attached to, and the file info is recorded both in the subset and internally to this function.

PGSd_DEM_CLOSE -- This function closes and detaches from all of the files of a particular subset.

calls to this function were made in the following DEM functions:

PGS_DEM_GetQualityData.c,

PGS_DEM_RecursiveSearchDeg.c,

PGS_DEM_RecursiveSearchPix.c,

PGS_DEM_Populate.c, PGS_DEM_GetMetadata.c,

PGS_DEM_Subset.c

NCR ID: **ECSed07452**

Title: DEM: error retrieving data type with PGS_DEM_GetSize

Severity: 3

Description: PGS_DEM_GetSize improperly returns the variable sizeDataType (which is the number of bytes in one pixel of data). This improper return occurs when more than one layer is opened by PGS_DEM_Open.

Resolution: The function PGS_DEM_GetSize was modified by Alexis Zubrow (lines 116-131) in PGS_DEM_GetSize.c file to take care of the problem.

NCR ID: **ECSed07728**

Title: Zero is not allowed as a valid Product ID when using shared memory

Severity: 3

Description: Load shared memory to use both Product ID and file name as NULL to indicate a problem with the PCF data line.

Files affected:

PGS_PC_InitCom.c

PGS_PC_TermCom.c

PGS_PC_GetFileFromShm.c

Resolution: When loading file information to shared memory the NULL value is used for both Product ID and filename to indicate a bad entry in the PCF. This allows for the user to still use zero (0) as a valid Product ID.

Changes were made in the following source files:

PGS_PC_InitCom.c

PGS_PC_TermCom.c

PGS_PC_GetFileFromShm.c

NCR ID: **ECSed07730**

Title: Integerized Sinusoidal Projection In GCTP

Severity: 3

Description: Support for the Integerized Sinusoidal Projection was added to the General Cartographic Transformation Package (GCTP) used by HDF-EOS 2.0, delivered in April. (see section 6.5 of the HDF-EOS Users Guide Vol 1).

This projection was not added to the SDP Toolkit 5.2 GCT tools. The GCT tools are needed to transform lat/lon to this projection. We will correct this oversight shortly by making the fix available in the same way we did with the June 18 fixes and we will include it in the DAAC Toolkit and next SCF Toolkit update.

Resolution:

1. Coyied functions isinusfor() and isinusinv() that were designed by Robert Wolfe (STX) and Raj Gejjagaraguppe (SAC) and modified the error/status message by calling the Toolkit SMF functions.
2. Modified the function PGS_GCT_Init() to include the functionality of processing the new projection type called Integerized Sinusoidal Grid.
3. Modified the function PGS_GCT_Proj() to add two function declaration for isinusfor() and isinusinv().
4. Added two error/status messages PGSGCT_E_ISIN_ERROR and PGSGCT_E_DMS_ERROR for PGS_GCT_12.t and recompiled to rebuild the header files PGS_GCT_12.h and PGS_GCT_12.f.
5. Added one new header file isin.h in the /ecs/formal/TOOLKIT/include/FW.
6. modified the makefile ((/ecs/formal/TOOLKIT/src/GCT/freeware) to include the new functions isinusfor() and isinusinv()

NCR ID: **ECSed07758**

Title: PGEs need to get metadata from HDF files in B.0

Severity: 3

Description: In B.0, PGEs need to have the choice of getting metadata from the HDF file or from the Target MCF. Archive metadata will only be in the HDF file, so the source of this data must be the HDF file in such cases.

Very important as a B.0 fix. May impact chaining of MODIS PGEs in the Testbed. (More in NCR)

Resolution:

1. Added code to set up a flag hdfattrnameflag to be PGS_TRUE if the HDF attribute name if equal to productmetadata.X or archivemetadata.X,

   where .x is a sequence number beginning at 0 and running as high as 9
2. Added code to set HDFflag to be PGS_TRUE if the attribute of the file associated with the particular ID and version contains ".met" and the filename associated with the logical identifier and version number is a HDF file existing in the same directory as the ASCII metadata file .met is
3. Added code to set signature specially for retrieving the archive metadata from the HDF file when the user sets up the first parameter "fileId", file id for the file containing parameter data is the ASCII metadata file .met file

4. Added code get a aggNode specially for retrieving the archive metadata from the HDF file when the user sets up the first parameter "fileId", file id for the file containing parameter data is the ASCII metadata file .met file

NCR ID: **ECSed07875**

Title: MODIS PGE08 fails due to DATETIME data type in metadata

Severity: 3

Description: MODIS PGE08 does not work. Insert of the output file for ESDT MOD29 fails with an error message indicating that ODL data type DATETIME is invalid for metadata attributes such as RangeBeginningDateTime.

Resolution: Added code to DsClIMF::CheckMetafileAttrs :

DATETIME is now allowed as a data type in the Toolkit template MCF. It is treated as a string.

NCR ID: **ECSed07887**

Title: MODIS PGE unable to access Gring metadata attributes

Severity: 3

Description: The Toolkit does not allow the user to retrieve a container attribute value from an ASCII Metadata file.

Resolution: Changed code to enable the user to retrieve the container attribute value from an ASCII Metadata file. The problem was the original code did not provide the procedure to check whether the attribute is a class attribute or not (Dup of ECSed07259)

NCR ID: **ECSed07888**

Title: SDP ToolKit is not working.

Severity: 3

Description: Messages passed to PGS_SMF_SetDynamicsMsg are being lost. (See J. Davis for more details.) No fatal errors produced by a PGE are written to LogStatus.

Resolution: This is most likely not a bug. The Process Control File (PCF) being used most likely has disabled logging of fatal (_F_) level status messages. This is done in the PCF via the line:

10117|Disabled status level list (e.g. W S F)|

If this line looks like:

10117|Disabled status level list (e.g. W S F)|F

then status messages with a status level of fatal (_F_) will not be logged. This is documented in the Toolkit users guide in section:

6.2.2.1.4 Status Level Control.

By removing the 'F' character from the end of the PCF entry shown above, fatal messages will be logged to the Toolkit status log file. This is a feature, not a bug.

NCR ID: **ECSed08395**

Title: Problem with FORTRAN Temp IO tool

Severity: 3

Description: These two problems are related:

This is Toolkit user support log number 970619:

I have encountered the following problem with the Release A version of the toolkit. I had never used PGS_IO_Gen_Temp_OpenF before, but at delivery it looks like we will need to do this. When I make my fortran call

ierr=pgs_io_gen_temp_openf(PGSd_IO_Gen_Endurance,42998,PGSd_IO_Gen_WSeqFrm,0,MOPDiag_unit) I get back:

ierr= 11792 Attempt to do FORTRAN Open with STATUS=OLD failed! Now with an open for write, the file should NOT exist. When I put an empty file in the correct location, I get back:

ierr= 11279 File exists! Changing access mode from Write to Update. This verifies that my PCF file is set up properly. Is there a bug in this routine?

—AND—

When I try to open a file listed in the INTERMEDIATE OUTPUT section of the PCF, the Toolkit is unable to find the logic id. I've tried using the duration=1 flag in the open routine, but that doesn't help.

Is the INTERMEDIATE OUTPUT section of the PCF searched for logic ids when a file is opened? I assume that it should be, but it appears not to be. I've also had trouble with the INTERMEDIATE INPUT section.

Resolution: THIS NCR really points out two errors, one is a user error and one is a Toolkit design flaw (bug in the code).

1) USER ERROR The proper use of the Toolkit Temp IO tools is to NOT put a name in the Process Control File (PCF). The problems reported by the users (see attachment "Problem") are due to the users attempting to "determine" the name of the temp file that they would like to use and adding an entry to the PCF for this logicalID / file name before running their PGEs.

This is an incorrect procedure. The Toolkit GENERATES temporary file names AT RUNTIME. Users may not choose temporary file names. Furthermore, the Toolkit adds the file entry to the PCF AT RUNTIME. If a filename already exists in the PCF for a given logical ID in the Temporary output section of the PCF, the Toolkit assumes that IT has already generated this file and therefore that the file

ALREADY exists on disk (the Toolkit does NOT actually check to see if the file already exists since by design no entry can exist in the PCF unless the file has ALREADY been created.

The solution to the users' problems is to simply delete any entries they may have added to their PCF for Temporary (INTERMEDIATE) output files.

2) TOOLKIT BUG

This turns out to be an error in the Toolkit code. The erroneous code is in the file PGS_PC_GetPCFTemp.c located in the Toolkit src directory under the PC sub-direcory ($PGSHOME/src/PC).

The source code in the file PGS_PC_GetPCFTemp.c was modified to allow for the case that the environment variable PGS_PC_INFO_FILE is set to a file ONLY (as opposed to a file PATH and a file NAME).

The test for a '/' character has been removed as a critical test of whether or not the variable PGS_PC_INFO_FILE has been properly set. The case that this variable is set to just a file name is now handled gracefully.

An instance of assigning an integer to a string formatting character in a printf() statement has been removed.

NCR ID: **ECSed08858**

Title: Toolkit SGI flag -ansiposix is obsolete

Severity: 3

Description: The Toolkit uses the compiler flag "-ansiposix" on the SGI. According to the documentation (man page) for the latest SGI C compiler, this flag is obsolete:

-ansiposix

(ANSI/ISO C only) Same compilation environment as -ansi with the additional preprocessor definition of _POSIX_SOURCE. This is a pure ANSI/ISO environment, and __STDC__ is defined with this option as well as with the -ansi option.

WARNING: This option is obsolete and will be removed in future releases. See the below section on API's for information on getting a POSIX-compliant compile.

Resolution: The use of the flag -ansiposix was replaced with the flags -xansi-D_POSIX_SOURCE in the files:

INSTALL-Toolkit, pgs-dev-env.csh.tmp, pgs-dev-env.ksh.tmp.

NCR ID: **ECSed08859**

Title: Link error in INSTALL-Toolkit script

Severity: 3

Description: The Toolkit script INSTALL-Toolkit erroneously creates a link called earthfigure.dat in $PGSDAT/CSC which points to utcpole.dat in $PGSHOME/database/common/CSC. The link SHOULD point to earthfigure.dat in $PGSHOME/database/common/CSC.

Resolution: The Toolkit script INSTALL-Toolkit now correctly creates a link called earthfigure.dat in $PGSDAT/CSC which points to earthfigure.dat in $PGSHOME/database/common/CSC.

NCR ID: **ECSed08861**

Title: The TK script INSTALL has logic errors

Severity: 3

Description: The Toolkit script INSTALL has the following logic errors:

1) If the user chooses NOT to install HDF both the HDF and HDF-EOS sections of the script are skipped. The script later tries to access the shell variable "hdfeos_installed" which in this case is never defined. This causes the script to bomb out.

2) If no sgi mode is specified to the INSTALL script on an IRIX64 platform the script says the default installation is 64 bit mode but it then compiles in OLD 32 bit mode.

Resolution: 1) the shell variable hdfeos_installed is initialized to indicate that HDF-EOS has NOT been installed prior to the section of the script that checks for HDF installation.

2) the shell variable sgi_mode is appropriately set to indicate the actual installion mode desired. An additional flag of -sgi has been added to the INSTALL script for those users who are interested in installing in old 32 bit mode directly.

NCR ID: **ECSed08862**

Title: SMF "repeating message" log error

Severity: 3

Description: I ran into a bug in the SDP Toolkit. Here is a vastly simplified piece of source code which displays the same symptoms:

SMFtest.c==========

#include <stdio.h>

#include <stdlib.h>

#include "PGS_MODIS_39501.h"

```
#include "PGS_SMF.h"


int main(void)
{
  PGSt_SMF_status ret;
  int i;


  for(i=0; i<9; i++)
  {
    ret = PGS_SMF_SetDynamicMsg(MODIS_E_CALLOC_FAIL, "Repeat message",
      "SMFtest.c main");
    if(ret != PGS_S_SUCCESS)
      return EXIT_FAILURE;
  }


  ret = PGS_SMF_SetDynamicMsg(MODIS_U_NO_INFORMATION, "Final message",
     "SMFtest.c main");
  return ret==PGS_S_SUCCESS ? EXIT_SUCCESS : EXIT_FAILURE;
}
```

==========

build command:

cc $CFLAGS SMFtest.c -I$PGSINC -L$PGSLIB -lPGSTK -o SMFtest

SMFtest

echo $status

The return status was 0, and the Status Log contents were:

==========

****

BEGIN_PGE: Wed Aug 13 13:43:38 1997

MSG_TAG: 11

FILE: /cc/cc_vob/INHOUSE/PGE01/MOD_PR03/output/LogStatus

LOGGING: status message logging enabled

TRACE_LEVEL: tracing disabled

PID_LOGGING: disabled

TOOLKIT_VERSION: SCF B.0 TK5.2

****

SMFtest.c main():MODIS_E_CALLOC_FAIL:323595783

Repeat message

SMFtest.c main():MODIS_E_CALLOC_FAIL - 8 additional occurrences

SMFtest.c main():MODIS_U_NO_INFORMATION:323594273

Final message

SMFtest.c main():MODIS_E_CALLOC_FAIL - 8 additional occurrences

==========

Where did the extra 8 MODIS_E_CALLOC_FAIL messages come from? How did they come after what should have been the "final message"? In my testing, I found this problem occuring only if the two messages are different types. If they were both _E_ messages, it didn't occur. This may be specific to version 5.2; I only just started using that version. I don't remember seeing this problem in similar circumstances using 5.1. I've never used version 5.1.1.

further note:

The problem actually only occurs with messages of status level _U_ or _N_as the "final message" (see above).

Resolution: The problem only occurs with status levels _U_ and _N_, which are special status levels used to log messages to the Toolkit user log. The problem occurs if a status message is logged multiple times and then followed by a logging of an _N_ or _U_ level message.

The SMF code does not properly handle the writing of repeated messages in this case. The code writes the repeated message notation into the status log as expected, then it writes the newly logged message. However in the case of _N_ or _U_ level messages the code enters a section where it again logs the message into the Toolkit user log. At this point it again writes the repeated message notation into the Toolkit status log.

The souce code of module PGS_SMF_WriteLog() (in file PGS_SMF.c) was modified. Repeat message logging is now handled correctly.

NCR ID: **ECSed08877**

Title: MODIS PGE08 fails due to DATETIME data type in metadata

Severity: 3

Description: Insert of the output file for ESDT MOD29 fails with an error message indicating that ODL data type DATETIME is invalid for metadata attributes such as RangeBeginningDateTime.

Resolution: This is a duplicate of ECSed07875.

NCR ID: **ECSed08878**

Title: AA freeform determines file type thru filename extension

Severity: 3

Description: TOOLKIT AA freeform software determines the type of file based on filename extension. IMF Data Server concatenates a tag to the filename when inserted to ensure uniqueness. This means that AA freeform software cannot correctly determine the file type.

This problem was detected during SSIT activity for ASTER ACVS PGE.

Resolution:

********** Rel B resolution (Added 971001 by elarson) **********

This is not a problem for Rel B. This problem arose with the ASTER ACT PGE, which uses its own versions of Toolkit AAdata files. The testbed chose to put these files on the IMF and acquire them when the PGE ran.

For the August Demo, Rel B PDPS chose to statically install these files in a different location from the default versions of the files. The PCF for this PGE then simply pointed to this different location.

As far as we know this ASTER PGE is the only PGE that uses its own versions of these files. The total size of the files is a few MB, so there is no potential problem with disk space in PDPS. The plan for DAAC operations is to also install the ASTER PGE specific versions of these files in their own location and point to them in the PCF for that PGE. There is no data server involvement in the use of these files in Rel B and thus the changes made for the testbed do not need to be applied.

NCR ID: **ECSed08880**

Title: GRINGPOINTSEQUENCENO object type conflict

Severity: 3

Description: The TOOLKIT template MCF used by the IMF specifies the type for the GRINGPOINTSEQUENCENO object to be STRING. Unfortunately, the document that was sent out to the instrument team specifies this object to be of type INTEGER.

Resolution: Changed the GRINGPOINTSEQUENCENO object's type from a STRING to an INTEGER in the IMF data dictionary file.

NCR ID: **ECSed08912**

Title: Error parsing disabled status mnemonics list in PCF

Severity: 3

Description: The SMF tools do not properly parse the list of disabled status code mnemonics in the PCF.

i.e., the following line (from a hypothetical PCF) is not properly parsed:

> 10119|Disabled status code mnemonic list|PGSTD_E_NO_LEAP_SECS PGSTD_M_ASCII_TIME_FMT_B

(this was discovered while examining the code in a debugger, there has not up until this point been any real side effect of this other than a some slow down in the code, put it is potentially dangerous)

Resolution: The intervening white space is now accounted for. The comma character is now also allowed as an item seperator in the list.

NCR ID: **ECSed08976**

Title: GCT tools require update

Severity: 3

Description: The Toolkit GCT tool group should be updated to use the gctp package being maintained by the HDF-EOS developers. This should be done in such a way that the results of the Toolkit calls are not affected (unless they were erroneous in the first place).

Resolution: Due to the calling sequence is different between the gctp package being maintained by the HDF-EOS developer and gctp package being maintained by the TOOLKIT for projection UNIVERSAL TRANSVERSE MERCATOR Easting and Northing or vice versa

Created a new function PGS_GCT_SetGetrMajorrMinor to save the semi-major axis and semi-minor axis values for projection UTM(UNIVERSAL TRANSVERSE MERCATOR) in order those values can be retrieved by the function PGS_GCT_Proj()

Added status message checking for all functions existing on the freeware directory that were replaced to use the gctp package being maintained by the HDF-EOS developer. The return status message in this package is using the

UNIX standard I/O function that is different from the original package that calls the Toolkit functions to handle all return status messages Added code to calculate the ZONE number from the given input Longitude value and obtain the semi-major axis and semi-minor axis values from by calling the PGS_GCT_SetGetrMajorrMinor, a function to set or retreive major and mijnor axis values, in order ZONE, semi-major and semi-minor axis values can be passed into the lower functions, utmforint() and utminvint() that will be called in the function PGS_GCT_Proj() instead of being called in the function PGS_GCT_Init()

NCR ID: **ECSed08977**

Title: MET Write tool should write ALL PGE metadata

Severity: 3

Description: Currently the MET tool PGS_MET_Write() enforces the writing of all metadata attributes in the Metadata Configuration File (MCF) that have a data location of "PGE" and whose mandatory parameter is set to TRUE.

The mandatory parameter is actually irrelevant in this case, this is not a proper test of whether or not metadata should be written out. The PGE should set values for ALL metadata contained in the MCF with a data location of "PGE". The MET tools should return a warning if ANY metadata parameter specified in the MCF with a data location of "PGE" has not been set by the PGE.

Resolution: Modified the source code to remove all aggregate nodes in the ODL tree only for the data location is MCF, TK, DSS, DP, or DAAC and the Mandatory set to false

Added code to generate a return warning message for any metadata parameter specified in the MCF with a data location of "PGE" has not been set by the PGE

NCR ID: **ECSed08979**

Title: EPH metadata tools reports same orbit twice

Severity: 3

Description: The EPH metadata retrieval tool PGS_EPH_GetEphMet(), which returns (among other things) a count of orbits spanned by the input time range, counts orbits twice under some circumstances (if data crosses file boundaries?).

In these cases it is reporting, e.g., number of orbits = 3 and the orbit numbers as (e.g.) 10, 10, 11.

Resolution: A check was added on each record of metadata retrieved from the physical files containing ephemeris data to ensure that duplicate metadata records are not returned to a user. This fix was done to the file PGS_EPH_GetEphMet.c.

NCR ID: **ECSed09042**

Title: HDF data for DEM tools needs to be reproduced with new metadata

Severity: 3

Description: HDF data files do not include new metadata. They need to be reproduced for 30ARC and 3ARC data sets.

Resolution: A new metadata descriptor and MCF file created for 3ARC and 30ARC data resultions. They were used to write metadata into HDF data files.

NCR ID: **ECSed09081**

Title: Write the ASCII .met file to the product/data directory

Severity: 3

Description: This implementment will allow the MODIS01 PGE to work

Resolution: Modified the source code to write .met files to the product/data directory instead of writing to the runtime (cureent working) directory

NCR ID: **ECSed09114**

Title: Write ASCII .MET files to the product/data directory

Severity: 3

Description: This change will allow the MODIS01 PGE to work

Resolution: The function PGS_MET_Write() has been modified to write ASCCI .met files to the produc/tdata directory instead of writing to the runtime (current working) directory

NCR ID: **ECSed09178**

Title: Toolkit does not properly copy over files during installation

Severity: 3

Description: PGS_PC_Shell.sh is missing from TOOLKIT/bin/$BRAND. The file is not being copied over during installation

Resolution: The target PGS_PC_Shell was added to the list of utilities to be built for the Toolkit group PC (as defined by the makefile for that group).

NCR ID: **ECSed09220**

Title: PGS_MET_GetPCAttr failure after PGS_MET_Remove

Severity: 3

Description: There two problems are related:

This is Toolkit user support log number 970929:

I find that with TK5.1.1 and TK5.2 (but not TK5.1), if pgs_met_init has been called twice, even if PGS_MET_Remove was called in between, PGS_MET_GetPCAttr (which calls PGS_MET_GetSetAttr) will fail. It returns PGSMET_E_DD_UNKNOWN_PARM I believe.

To clarify a previous message I sent last week, PGS_MET_GetPCAttr seems to fail if called after PGS_MET_Remove is called. Here is a short demonstration program. The result with toolkit 5.2 is:

Note: variable read is set to -42 before calling PGS_MET_GetPCAttr.

Called PGS_MET_Init, returnStatus = 0

Called PGS_MET_GetPCAttr, returnStatus = 0, ORBITNUMBER.1 = 1

Called PGS_MET_Remove

Called PGS_MET_GetPCAttr, returnStatus = 0, ORBITNUMBER.1 = -42

(The second call to PGS_MET_GetPCAttr returns success but does not actually alter the variable it is supposed to set.)

Resolution: Deleted the source code in the function PGS_MET_Remove() that frees the memory of aggregate node PGSg_MET_AggList held by the metadata configuration file (MCF)

NCR ID: **ECSed09222**

Title: A defect in retrieving the Attribute of Date and Time values

Severity: 3

Description: A defect was found after retrieving the attribute value of DateTime, 2001-01-31, when testing the LandSat7 data of CPF files from IAS. The value displayed after retrieving is 2001-01-31T0:00:.:00

Resolution: In the original source code , a flag secondiszero is set up to be TRUE to indicate the zone time is equal to 0 but there is no code to handle the ouput value that is to be retrieved if the flag of secondiszero is equal to TRUE

Modified the source code to handle the ouput value that is to be retrieved if the flag of secondiszero is equal to TRUE

NCR ID: **ECSed09301**

Title: Change the Flag set up for archive HDF attribute to inventory

Severity: 3

Description: A error will be produced if the input HDF attribute name for the non-inventory is other than the string "archivemetadata.N" or "productmetadata.N" (N=0...n)

Resolution: Modified the source code in function PGS_MET_GetPCAttr() that set hdfattrnameflag to be PGS_TRUE if the HDF attribuet name is equal to

productmetadata.X or archivemetadata.X,where .x is a squeence number beginning at 0 and running as high as 9 to set hdfattrnameflag to be PGS_TRUE if the HDF attribuet name is equal to coremetadata.X where .x is a squence number beginning at 0 and running as high as 9

NCR ID: **ECSed09310**

Title: It never set valid flag to false

Severity: 3

Description: I found there is a bug in /ecs/formal/TOOLKIT/src/CUC/ODL/cvtvalue.c which is the routine to convert ODL to datatime and at the same time to do validation on datatime attribute. When it found the data's year is out of range. It never set valid flag to false. I need to check this flag to check if this date is OK or not. But I can't checkout to do modification because it is restricted from the main branch. Can you tell me who is responsible for this?

Resolution: Added code to set vaild flag defined to check whether year is outside expected range or not to be 0 if it is in false case.

NCR ID: **ECSed09316**

Title: PGS_EPH_GetEphMet() returns wrong orbit information

Severity: 3

Description: The function PGS_MET_GetEphMet() does not return the appropriate orbit metadata information for some points.

Resolution: The algorithm to extract metadata has been corrected (see attachment "Analysis"). The source code file PGS_EPH_GetEphMet.c was altered.

NCR ID: **ECSed09376**

Title: PGS_PC_GetUniversalRef tool dumps when input pointer > 255 (HP only)

Severity: 3

Description: PGS_PC_GetUniversalRef tool core dumps when the input pointer attribute exceeds 255 characters. This only occurs on the HP platform (relbhpcs). The piece of the PCF file causing this is as follows:

The following are to test long URLs. NCR ECSed07731.

URL that longer then 256. This works, but might not in the future.

4221|modis.v1999_017|||modis.v1999_017_uref_with_a_very_long_path_name_too_see_i

f_the_toolkit_can_handle_it_that_is_so_long_that_it_takes_lots_of_thinks_to_say_

to_fill_the_line_all_the_way_out_to_the_very_end_that_is_all_256_characters_that

_are_allow_as_an_universal_reference_is_allowed_to_see_if_a_line_that_300_charac

ters_will_cause_an_error_v1|modis.attr1999_017|2

NOTE: This test was put in place to test and verify ECSed07731.

Resolution: The test scenario uses a Universal Reference greater than what the Toolkit documents is the largest size that should be used. URs are generated by ECS (i.e. this is not something that users (ITs) are free to define/configure on their own). Due to the nature of C character strings the Toolkit cannot really enforce proper behavior when encountering excessively long strings.

The test case should not use the long string it is currently using since this is not testing a realistic scenario.

The test case should be altered (see attachent "Analysis"); the problem will not manifest.

NCR ID: **ECSed09386**

Title: Append a data type to the value Node of unset attribute

Severity: 3

Description: In order to define the proper data type in the TYPE parameter for those unset attribute values, that were written out on the HDF-EOS/non HDF-EOS metadat file with the string "NOT SET" for Data Location is PGE, "NOT SUPPLIED" for Data Locataion is MCF, and "NOT FOUND" for Data Location is NONE no matter which data type it belong to, when calling the function PGS_MET_ConvertToMCF() to convert a HDF-EOS/non HDF-EOS metadata file to be a .MCF that will be similiar to a Metadata Configuration file to be used to initialize the memory for the contents of the MCF to provide a basis for setting and checking metadata parameter values, the different string should be defined for different type of data for unset attribute. The function PGS_MET_CheckAttr() that was designed to be used by the function PGS_MET_Write() to check that all the mandatory metadata is set prior to being written to the product file become necessary to make this kind of modification for unset attributes.

Resolution: Modified code to define different strings for different types of data for unset attributes instead of defining the strings: "NOT SET" for Data Location PGE, "NOT SUPPLIED" for Data Location MCF, and "NOT FOUND" for Data Location NONE no matter which data type it belongs to

NCR ID: **ECSed09394**

Title: The value was supposed to be an INTEGER and not STRING

Severity: 3

Description: "…There is only one problem. In the .met file, there could be case where we have a metadata object whose type was, lets say INTEGER, but the vales is "NOT SET", a string. You have no way of knowing from the .met file that the value was supposed to be an INTEGER and nor STRING. When I wrote the routine, the intention was to simply use PGS_MET_Init and PGS_MET_Write on the converted MCF. I think user should be madse aware of this fact…."

Resolution: Added code to remove the VALUE parameter from the aggregate Node if attached value node containing any one of the following strings:

"NOT SET:STRING", "NOT SET:INTEGER", "NOT SET:DOUBLE", "NOT SET:DATETIME", "NOT SET:DATE", "NOT SET:TIME", "NOT SUPPLIED:STRING", "NOT SUPPLIED:INTEGER", "NOT SUPPLIED:DOUBLE", "NOT SUPPLOIED:DATETIME", "NOT SUPPLIED:DATE", "NOT SUPPLIED:TIME", "NOT FOUND: STRING", "NOT FOUND:INTEGER", "NOT FOUND:DOUBLE", "NOT FOUND:DATETIME", "NOT FOUND:DATE", or "NOT FOUND:TIME"

that was written out on the HDF-EOS/non HDF-EOS meatadata file when attribute has not been set up with the proper value. And a TYPE parameter including the attached value node that contains any one of the following type of data:

"INTEGER", "STRING", "DOUBLE", "DATETIME", "DATE" or "TIME",

will be attached to this aggregate Node.

NCR ID: **ECSed09402**

Title: 64-bit F90 programs receive "unsupported by architecture" error

Severity: 3

Description: When attempting to execute any F90 drivers in 64-bit mode, the error "...program not supported by this architecture" is received. The "-mips3" flag is missing from the FORTRAN compiler on relbsgi (R4400 chip).

Resolution: The Toolkit install script (INSTALL-Toolkit) was updated to ensure that the -mips3 flag is used with the f90 compiler when compiling in 64 bit mode on SGIs using the 4xxx chip.

NCR ID: **ECSed09520**

Title: MET tools should not allow writing of attribute if data location=MCF

Severity: 3

Description: The toolkit has in the past allowed PGEs to write metadata attributes where data location = MCF. This should not be allowed, since once the MCF is created from

the ESDT, no one should change the attributes that define the MCF. And this potentially causes problems for the data server.

The Toolkit MET tools need to be changed to return an error if an attempt is made to write an attribute whose data location = MCF.

This has been confirmed with Cheryl Croft and Corey Boettcher from Science, Simon Cantrell from Ingest and Edson Fisher and Bob Hartranft from Data Server.

Resolution: Added code to generate the error message if the Data Location is MCF and user attends to set up the attribute value that already been set up

NCR ID: **ECSed09525**

Title: Move back modified functions to previous version

Severity: 3

Description: Based on the .MCF converted by the new function PGS_MET_ConvertToMCF will cause the problem of uncompatible with the implemented data model; therefore, this new function will be removed off the clearcase. All the functions, PGS_MET_CheckAttr(), PGS_MET_GetSetAttr(), and PGS_MET_GetSetAttrF(), that already been modified because of the new function should be changed back to the previous version

Resolution: Developer:

1. Checked out functions, PGS_MET_Checkout(), PGS_MET_GetSetAttr(), and PGS_MET_GetSetAttrF()
2. Copied the previous verion to overwrite the current version for function PGS_MET_CheckAttr()
3. Deleted code that added in order to make the new function PGS_MET_ConverToMCF() can convert a .met file to .MCF for function PGS_MET_GetSetAttr() and PGS_MET_GetAttrF()
4. Checked in all three functions

Tester:

Verified that the previous versions of the tools PGS_MET_Checkout(), PGS_MET_GetSetAttr(), and PGS_MET_GetSetAttrF() were restored in ClearCase and will be delivered.

NCR ID: **ECSed06194**

Title: Very minor differences in the L0 drivers on the Power Challenge

Severity: 4

Description: On the Power Challenge getting minor differences in the L0 drivers

The output and sample files are at

/data3/ecs/OPS/CUSTOM/bin/scf_64f77/TOOLKIT/test/test_drivers/IO/L0

Resolution: The problem with the FORTRAN test driver PGS_IO_L0_Driver_f is with the test driver function packet_number(). This function does not properly parse packet buffers to determine the packet number.

By replacing the code:

```
integer function packet_number(data_packet)
character*(*) data_packet
integer      mask
mask = 64
packet_number = mod(ichar(data_packet(3:3)),mask)
    packet_number = packet_number*256 + ichar(data_packet(4:4))
return
end
```

with the code:

```
integer function packet_number(data_packet)
integer      data_packet
integer      mask
mask = 16384
    packet_number = mod(temp, mask)
return
end
```

the driver produced the same results as the C driver and as the sample output.

NCR ID: **ECSed07278**

Title: L0 AM get files times tool does not match EDOS ICD

Severity: 4

Description: This is Toolkit User Log problem number 970521. The ASTER team in Japan has discovered a problem with the Level 0 tools. The L0 tools will not properly parse an EDOS Construction Record if the Construction Record indicates that the data set to which it refers contains files with missing packets. This cannot happen using the L0sim simulator delivered with the Toolkit, but it does need to be fixed.

Resolution: The following change was made in $PGSSRC/IO/L0/PGS_IO_L0_GetEOSAMfileTimes.c:

line 195 changed from:

```
offset += 44*(PGS_IO_L0_BYTEtoINT(construction_record+offset, 4));
              ^^
```

to:

```
offset += 48*(PGS_IO_L0_BYTEtoINT(construction_record+offset, 4));
              ^^
```

NCR ID: **ECSed07280**

Title: MET function modifying constant string

Severity: 4

Description: We have discovered that one MET function was modifying an input constant string, without making a copy first: PGS_MET_NameAndClass.c This causes a core dump using the gcc compiler, but not using any of our supported compilers.

Resolution: Fixed the coding to prevent the metadata name, one input parameter that users provide as the attribute name to be set with the value, from being changed.

file changed:

/ecs/formal/TOOLKIT/src/MET/support/PGS_MET_NameAndClass.c

NCR ID: **ECSed07281**

Title: Search for attribute in empty group does not return an error

Severity: 4

Description: If a search for an attribute is attempted in an empty group, PGS_S_SUCCESS is returned instead of an error.

The affected functions are:

$PGSHOME/src/MET/support/PGS_MET_SearchAttr.c

$PGSHOME/src/MET/support/PGS_MET_SearchAttrF.c

Resolution: We have modified the code to check for an empty group and return an error.

files changed:

$PGSHOME/src/MET/support/PGS_MET_SearchAttr.c

$PGSHOME/src/MET/support/PGS_MET_SearchAttrF.c

NCR ID: **ECSed07580**

Title: remove predicted leap seconds from Toolkit code

Severity: 4

Description: The Toolkit contains the ability to use predicted leap seconds. That is, estimations of what the leap seconds will be far into the future. These predicted leap seconds were being extracted from US Naval Observatory estimates of Earth rotation in the far future. Recently, however, the Naval Observatory has stated that they do not recommend or support predictions of leap seconds. Actual leap seconds are generally announced almost 6 months in advance. Predictions beyond the actual leap seconds are deemed too unreliable.

Also, as ECS approaches actual production, it will be important that the Toolkit only support accurate production quality support data, such as leap seconds. (To prevent any production being done with inaccurate numbers). The original inclusion of far future "predictions" supported some user siimulations, but are dangerous to have around in a production environment.

Accordlingly, the predicted leap seconds capability needs to be removed from the Toolkit.

Resolution: The leap seconds file has o have its "tail" removed. The function that updates the leap seconds file has to be reworked not to create predicted ones. All functions accessing the leap seconds data have to be reworked so as not to look for predicted leap seconds. The primary such function, PGS_TD_LeapSec.c must be rewritten to as to give a return status indicating that the requested time is out of the range of the Table. Because the intervals are not predictable, the header , which indicates when the leap seconds file was last verified against the Naval Observatory data, must be checked. If it has not been rewritten within the previous 6 months to the requested time, an out-of-range return value will be given.

NCR ID: **ECSed08559**

Title: Earth Rotation Rate

Severity: 4

Description: The Tools PGS_CSC_ECItoECR() and PGS_CSC_ECRtoECI() use a nominal Earth rotation rate 0.00007291151467 radians/s to transform velocities, based on the Explanatory Supplement to the Astronomical Almanac and the USNO software "NOVAS". Recently the International Earth Rotation Service (IERS) and the International Astronomical Union (IAU) have adopted the slightly smaller value 0.00007291151 radians pere second. This actual instantaneous value can vary by at least this difference due to geophysical events, but it is desirable to change to the slightly smaller rotation rate so as to be in better accord with the gradual slowing of the Earth in the next few decades. We shall therefore change the built-in constant. Numerical answers for velocities transformed between ECR and ECI may come out different by << 1 mm/s for Earth points, somehwhat larger, but still inconsequentially changed for planets and distant objects.

Resolution: added a #define of Earth rotation rate at IERS value

This line appears as:

#define EARTH_ROTATE_RATE 0.000072921151 /* IERS Value as of 1997 */

in line #422 of PGS_CSC_ECRtoECI.c

and in line #439 of PGS_CSC_ECItoECR.c

NCR ID: **ECSed08854**

Title: Excessive logging by PC tools

Severity: 4

Description: Excessive "warning" messages are being logged in the Toolkit status log file. The PC tools issue a warning any time a directory is not explicitly specified on a line in the PCF which represents a file.

e.g.

101|fileName|||||1

causes a warning message to be printed in the status log file when the logical ID 101 is accessed by a users source code while

101|fileName|directoryName||||1

does not.

This is a normal occurrence and should not be reported in the statuslog file.

Resolution: Logging of warnings was removed from the function PGS_PC_GetPCSDataGetRequest() (in the file PGS_PC_GetRequest.c). This functionality is handled by higher level PC routines.

NCR ID: **ECSed08855**

Title: Make dependencies do not work properly

Severity: 4

Description: Make dependencies do not work properly for Toolkit makefiles. The Toolkit makefiles should take advantage (as much as possible) of the dependency feature of the "make" command. This would reduce compile time for developers and allow the Configuration Management team to begin nightly builds of the Toolkit.

Resolution: The Toolkit makefiles have been made more conducive to iterative builds and updates. This should allow for more efficient development procedures and CM updates.

NCR ID: **ECSed08857**

Title: chkeph reports ALL s/c as "unsupported"

Severity: 4

Description: The binary executable "chkeph", which is used to check Toolkit formatted spacecraft ephemeris and attitude files, reports ALL spacecraft as being unsupported.

The output of this tool looks like (e.g.):

EOS_AM1_Ephemeris_1997-05-10T22:00:00.eph:

spacecraft ID: EOSAM1 (unknown)

start time: 137455203.000000 (1997-05-10T22:00:00.000000)

stop time: 137462399.000000 (1997-05-10T23:59:56.000000)

time interval: 2.000000

total records: 3599

checking record: 0003599 ... OK.

The output SHOULD look like:

EOS_AM1_Ephemeris_1997-05-10T22:00:00.eph:

spacecraft ID: EOSAM1 (2222)

start time: 137455203.000000 (1997-05-10T22:00:00.000000)

stop time: 137462399.000000 (1997-05-10T23:59:56.000000)

time interval: 2.000000

total records: 3599

checking record: 0003599 ... OK.

Resolution: The section of code that read:

```
if (returnStatus != PGS_S_SUCCESS)
    {
       spacecraftTag = 0;
    }

    if (spacecraftTag != 0)
    {
       printf("   spacecraft ID: %s (%d)\n",fileHeader.spacecraftID,
            scTagInfo.spacecraftTag);
    }
    else
    {
```

```
    printf("   spacecraft ID: %s (unsupported)\n",
        fileHeader.spacecraftID);
}
```

has been replaced with code that reads:

```
if (returnStatus == PGS_S_SUCCESS)
{
   printf("   spacecraft ID: %s (%d)\n",fileHeader.spacecraftID,
        scTagInfo.spacecraftTag);
}
else
{
   printf("   spacecraft ID: %s (unsupported)\n",
        fileHeader.spacecraftID);
}
```

NCR ID: **ECSed08860**

Title: Function prototypes should use "void"

Severity: 4

Description: Functions with no calling parameters should be declared with the "void" keyword in the function prototype, e.g.:

```
PGSt_SMF_status PGS_Function();
```

should be:

```
PGSt_SMF_status PGS_Function(void);
```

Resolution: The only file affected by this is PGS_MET.h. In this file the line:

```
PGS_MET_Remove(void);          /* Removes MCF after it is written to HDF
*/
```

was replaced with:

```
PGS_MET_Remove();          /* Removes MCF after it is written to HDF */
```

NCR ID: **ECSed08863**

Title: udunits package out of date

Severity: 4

Description: The version of the udunits package use by the Toolkit is 1.4. Version 1.11.5 is available. The version used by the Toolkit is cumbersome and requires constant special fixes to compile. The new version may correct this.

Resolution: The udunits package has been updated to version 1.11.5.

NCR ID: **ECSed08903**

Title: Unreachable line in PGS_CUC_Cons()

Severity: 4

Description: In the file $PGSHOME/src/CUC/PGS_CUC_Cons.c are the following two lines (243, 244):

```
return PGSCUC_E__ERROR;

cuc_agg = RemoveAggregate(cuc_agg);
```

It is not possible for these second line to be executed. These lines should presumably read:

```
cuc_agg = RemoveAggregate(cuc_agg);

return PGSCUC_E__ERROR;
```

as they do in several other places in the code.

This problem was detected during compilation by turning on all flags. Line 244 was flagged as one that has no path to it.

Resolution: RemoveAggregate() is called before the function returns to its caller (see attachment "Problem").

NCR ID: **ECSed08908**

Title: Some DEM functions did not return error message PGSMEM_E_NO_MEMORY

Severity: 4

Description: After memory allocation functions should return error message if memory cannot be allocated. Some DEM functions check for availabilty of memory, but does not report PGSMEM_E_NO_MEMORY if failure occurs.

Resolution: The lines similar to the following (which is for the file PGS_DEM_Subset.c and the parameter getInfo):

```
sprintf(dynamicMsg, "Error allocating memory for "
        "getInfo");
statusSmf = PGS_SMF_SetDynamicMsg(PGSMEM_E_NO_MEMORY,
                                  dynamicMsg,
                                  "PGS_DEM_Subset()");
statusError = PGSMEM_E_NO_MEMORY;
```

were included at points where it is checked for the non-availabity of memory in files

PGS_DEM_GetPoint.c

PGS_DEM_RecursiveSearchDeg.c

PGS_DEM_RecursiveSearchPix.c

PGS_DEM_ReplaceFillPointsFlt32.c

PGS_DEM_ReplaceFillPointsInt8.c

PGS_DEM_Subset.c

NCR ID: **ECSed08980**

Title: TK headers need #ifdef __cplusplus

Severity: 4

Description: Many Toolkit header files contain the

#ifdef __cplusplus

contruct commonly used to allow C++ to access C routines. Some Toolkit headers do not have this contruct however. The headers should be consistant. The lack of this C++ "binding" has already caused a problem for the Data Server group which uses C++ AND uses the Toolkit. This problem was reported by C++ users of the Toolkit. The instrument teams did not experience this problem since they do not the C++ interface. Further visual inspection showed that several modules had this problem.

Resolution: The proper syntax was added to each header file that was lacking it. Namely the constructs:

#ifdef __cplusplus

extern "C" {

#endif

#ifdef __cplusplus

}

#endif

were added around all function declarations in the header files.

NCR ID: **ECSed08981**

Title: INSTALL scripts need revision

Severity: 4

Description: The INSTALL script wording when querying for HDF and HDF-EOS installation uses potentially confusing language (complaints have been received from users).

The INSTALL script asks:

"Pathname where directory HDF4.1r1 is located..."

when it wants the directory upto but no including the actual HDF installation directory. However, it asks:

"Pathname where HDF-EOS2.0v1.00 is located..."

when it wants the directory upto AND INCLUDING the HDF-EOS installation directory.

A minor issue, but ought to be fixed.

Resolution: The INSTALL script has been modified so that the queries for HDF and HDF-EOS installation directories are now:

Pathname where HDF4.1r1 is installed [<default_path>]

and

Pathname where HDF-EOS2.0v1.00 is installed [<default_path>]

respectively.

In both cases the user should provide the path upto and including the top level directory of these installations. This is different than the behavior of the HDF query in previous version of the Toolkit but the if a user assumes the old behavior (provides the path upto but NOT including the top level HDF directory) the INSTALL script will behave the same way it has in previous versions (i.e. it is backwards compatible).

NCR ID: **ECSed09195**

Title: DEM tool pgs_dem_getpoint has problem in getiing data for elevation

Severity: 4

Description: In fortran90 when the hdf files are opened for two layers using pgs_dem_open, by defining numlayers=2, layerlist(1)=PGSd_DEM_ELEV and layerlist(2)=PGSd_DEM_WATER_LAND, and try to extract data for elevation and land/sea using pgs_dem_getpoint, the data extracted for elevation are not right. Since land/sea data are 1 Byte type integer and elevation data are 2 byte type integer, on sgi machine we get the warnning

Warning: ..... Inconsistent datatype for arg 9 in call to PGS_DEM_GETPOINT during compilation, and incorrect data values for elevation during run time.

This problem does not exist if we use pgs_dem_open separately for each layer, extract the points for that layer using pgs_dem_getpoint, and close the files using pgs_den_close.

Also the problem does not exist for c codes.

The problem reported above only occurs for f90 in old 32 bit sgi. There is no such a problem with f90 in new 32 bit sgi.

Resolution: Besides other changes since April to the DEM source codes, Alexis zubrow added dataType to PGSd_DEM_INFO (July 3, 1997) in PGS_DEM_Lookup.c to take care of different data types for different layers. The test code using new toolkit libraries in

/net/htsc/pgs/tk5.2.1/TOOLKIT/lib

extracted correct results both at relbsgi machine and user's sgi machine at mop1.eos.ucar.edu.

Sixty lines were added to PGS_DEM_Lookup.c

NCR ID: **ECSed06154**

Title: PGS_DEM_GetQualityData not availablle for SCF B.0 Toolkit 5.2

Severity: 5

Description: PGS_DEM_GetQualityData is not available for the present release. Have not received Source, Quality or Geoid data from EDC (the data producer). Not able to verify exact format, data type, and structure of quality and source data.

Resolution: added PGS_DEM_GetQualityData.c file to DEM toolkit.

NCR ID: **ECSed07279**

Title: Logical ID in PCF template is outside reserved range

Severity: 5

Description: One logical ID for a file used by the Toolkit was placed in the B.0 PCF template with a number outside the range reserved for Toolkit use (10000- 10999):

11001|udunits.dat|~/database/common/CUC||||1

Resolution: The valid logical ID of 10302 was chose to replace the invalid value of 11001. Line 46 of the file PGS_CUC.h was changed from:

```
#define PGSd_UDUNITS_DAT 11001
                         ^^^^^
```

to:

```
#define PGSd_UDUNITS_DAT 10302
                         ^^^^^
```

Line 362 of the file $PGSRUN/PCF.relB0.template was changed from:

```
11001|udunits.dat|~/database/common/CUC||||1
^^^^^
```

to:

```
10302|udunits.dat|~/database/common/CUC||||1
^^^^^
```

NCR ID: **ECSed09374**

Title: Land/sea mask identifiers added to DEM tools.

Severity: 5

Description: Users requested identifiers for the land/sea mask data, so that the numbers associated with the data are not hard wired to their code.

Resolution: The following identifiers added to PGS_DEM.h file

```
#define  PGS_DEM_SHALLOW_WATER          0
#define  PGS_DEM_LAND                   1
#define  PGS_DEM_SHORELINE              2
#define  PGS_DEM_SHALLOW_INLAND_WATER   3
#define  PGS_DEM_EPHEMERAL_WATER        4
#define  PGS_DEM_DEEP_INLAND_WATER      5
#define  PGS_DEM_MODERATE_OCEAN         6
#define  PGS_DEM_DEEP_OCEAN             7
```

and the following lines added to PGS_DEM.f file

```
integer PGS_DEM_SHALLOW_WATER
parameter (PGS_DEM_SHALLOW_WATER=0)

integer PGS_DEM_LAND
parameter (PGS_DEM_LAND=1)

integer PGS_DEM_SHORELINE
parameter (PGS_DEM_SHORELINE=2)

integer PGS_DEM_SHALLOW_INLAND_WATER
parameter (PGS_DEM_SHALLOW_INLAND_WATER=3)

integer PGS_DEM_EPHEMERAL_WATER
parameter (PGS_DEM_EPHEMERAL_WATER=4)

integer PGS_DEM_DEEP_INLAND_WATER
parameter (PGS_DEM_DEEP_INLAND_WATER=5)

integer PGS_DEM_MODERATE_OCEAN
parameter (PGS_DEM_MODERATE_OCEAN=6)
```

integer PGS_DEM_DEEP_OCEAN

parameter (PGS_DEM_DEEP_OCEAN=7)

In addition PGSd_DEM_FILLVALUE and PGSd_DEM_NO_FILLVALUE which are defined (as -9999 and -8888) in PGS_DEM.h, were added to PGS_DEM.f, so that fortran users have access to these flags.

NCR ID: **ECSed09506**

Title: Minor output differences for PGS_SMF_EventLogger on SGI

Severity: 5

Description: The PGS_SMF_EventLogger tool is giving minor output differences on the SGI platform in old 32-bit and new 32-bit modes. The differences seen are as follows in all instances where "<" indicates actual outputs and ">" indicates expected output:

PGS_SMF_EventLogger_Driver_c.diff

::::::::::::::

PGS_SMF_EventLogger_Driver_c

29c29

< Mnemonic: PATHFINDER_M_INFOMESSAGE_1

> Mnemonic: PATHFINDER_C_PGSINFO_1

49c49

< Mnemonic: PATHFINDER_M_INFOMESSAGE_2

> Mnemonic: PATHFINDER_C_PGSINFO_2

69c69

< Mnemonic: PATHFINDER_M_INFOMESSAGE_3

> Mnemonic: PATHFINDER_C_PGSINFO_3

89,90c89,90

< Mnemonic: PATHFINDER_M_EMAILMESSAGE_1

< Message: This is test email message #1, string #1 of 1

> Mnemonic: PGS_S_SUCCESS

> Message: SUCCESSFUL operation

109,110c109,110

< Mnemonic: PATHFINDER_M_EMAILMESSAGE_2

< Message: This is test email message #2, string #1 of 4 -- This is test email message #2, string #2 of 4 -- This is test email message #2, string #3 of 4 -- This is test email message #2, string #4 of 4

> Mnemonic: PGS_S_SUCCESS

> Message: SUCCESSFUL operation

129,130c129,130

< Mnemonic: PATHFINDER_M_EMAILMESSAGE_3

< Message: This is test email message #3, string #1 of 3

This is test email message #3, string #2 of 3

This is test email message #3, st

ring #3 of 3

> Mnemonic: PGS_S_SUCCESS

> Message: SUCCESSFUL operation

PGS_SMF_EventLogger_Driver_c done

Resolution: The PGS_SMF_EventLogger drivers were reran and the problem no longer occurred. The original problem can probably be traced to a test driver script problem. This is not a Toolkit problem.

5.3 Release B.0 Toolkit Version 5.2.1 Non-Conformance Reports (Open Status)

The following NCRs are liens against the Toolkit 5.2.1 delivery:

NCR ID: **ECSed00765**

Title: Files are not being sent when running on the HP and IBM.

Severity: 3

Description: While running on the HP, trying to send files to either of the following:

1. Adriatic itself
2. bering.hitc.com
3. eos.hitc.com

the files don't get sent. It was tried inside and outside of clearcase, and when running the ftp command from the command line it works successfully.

The sun4, sgi and dec don't have any problems(ibm and sun5 are unavailable). This has been deferred.

NCR ID: **ECSed00225**

Title: Environment variable PGS_PC_INFO_FILE

Severity: 4

Description: This DR is purposely open to inform everyone that there is an inherent problem on the return status from almost all of the toolkits (IO, MEM, SMF, PC, etc.). The problem is due to not checking the return status from SMF toolkits such as PGS_SMF_SetStaticMsg(), PGS_SMFSetDynamicMsg(), PGS_SMF_SetUNIXMsg() etc.

An example would be in MEM tools when trying to set the appropriate error messages by calling SMF, SMF routine detects some environment variable and appropriately returns PGSSMF_E_LOGFILE or PGS_E_ENV to the MEM caller routine.

Currently, the MEM routine does not check the return status and proceeds to return MEM specific status; this is the current design. The problem comes about when the user calls PGS_SMF_GetMsg(). The static buffer error message does not agree with the return status from the MEM tool because the SMF tool, upon detecting an error, has overridden it. At this juncture, we are not sure of the appropriate step to take: have all tools potentially return SMF related errors, which creates more confusion because the user doesn't know the real outcome of his call to the tool, or perform some coupling with the SDPS processing system to let them know what happened and let it take corrective action. These are design issue which must be further explored.

NCR ID: **ECSed07450**

Title: DEM tools error at international date line

Severity: 4

Description: If attempt to extract a region which crosses the international date line (180degrees W/E), the DEM tools will return an error. It is conceivable that such regions may be requested.

(Note: This is also caused by the Bilinear interpolation issue: NCR 6151.)

This has been deferred.

NCR ID: **ECSed08922**

Title: DEM: PGS_DEM_SortModels does not step to lower resolution when data ....

Severity: 4

Description: DEM: PGS_DEM_SortModels does not step to lower resolution when data is not available in higher resolution. (Note: This is caused by the Bilinear interpolation issue: NCR 6151.)

This has been deferred.

NCR ID: **ECSed01005**

Title: Warning messages during installation.

Severity: 5

Description: These warnings primarily come from shareware and freeware used by the Toolkit. We have decided not to modify this code to prevent it from becoming custom code. (This issue will be closed shortly.)

NCR ID: **ECSed01037**

Title: Some requirements are partially met or deferred

Severity: 5

Description: As of the Release B.0 SCF Toolkit 5.2 delivery April 1997, the only requirement not satisfied is PGSTK-0820, which asks for star positions. This capability is only needed by SOLSTICE, an instrument scheduled for launch in 2003. Implementation of this requirement has been deferred.**NCR ID: ECSed06151**

Title: DEM bilinear interpolation not available in SCF B.0 TOOLKIT5.2

Severity: 5

Description: DEM Tools presently will not support bilinear interpolation. Awaiting feed-back from instrument teams about particular algorithm to deal with following technical problems:

1) the issue of weighting pixels from 3 arc resolution versus data pixels from 30 arc resolution.

2) the number of pixels to iterate before progressing to the next, lower resolution data pixels.

3) boundary problems at the edge of large fill value section and at the geographic extent of the world.

This has been deferred.

NCR ID: **ECSed09440**

Title: DEC returning different output for PGS_PC_GetTempReferenceCom

Severity: 5

Description: The PGS_PC_GetTempReferenceCom tool returns different values for the "Existence Flag" on the DEC platform only as follows where "<" is actual and ">" is expected:

6. Non-Conformance Status

6.1 Patch Releases for Toolkit 5.2.1

6.1.1 Installed Changes

Addendum A addresses the modifications to problems found in the Version 2 Toolkit 5.2.1 software. The patches delivered are part of Version 2 Drop 2.01 and Drop 3. The files updated are provided below:

Drop 2.01

/ecs/formal/TOOLKIT/src/MET/support/PGS_MET_SearchAttr.c
/ecs/formal/TOOLKIT/src/MET/support/PGS_MET_SearchAttrF.c
/ecs/formal/TOOLKIT/src/MET/support/PGS_MET_CheckAttr.c
/ecs/formal/TOOLKIT/src/MET/support/PGS_MET_GetConfigByLabel.c

Drop 3

/ecs/formal/TOOLKIT/include/PGS_MET.f
/ecs/formal/TOOLKIT/include/PGS_MET.h
/ecs/formal/TOOLKIT/src/EPH/orbsim/makefile
/ecs/formal/TOOLKIT/src/TD/PGS_TD_LeapSec.c
/ecs/formal/TOOLKIT/src/TD/update_leapsec_CC.sh
/ecs/formal/TOOLKIT/src/TD/update_leapsec.sh
/ecs/formal/TOOLKIT/src/TD/PGS_TD_TAItoUT1pole.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_RecursiveSearchDeg.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_Subset.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_ReplaceFillPointsFlt32.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_RecursiveSearchPix.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_Populate.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_OrderIndicesSum.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_GetSize.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_ExtentRegion.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_ReplaceFillPointsInt8.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_ReplaceFillPointsInt16.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_OrderIndicesSumPix.c
/ecs/formal/TOOLKIT/src/DEM/PGS_DEM_OrderIndicesSumDeg.c
/ecs/formal/TOOLKIT/src/CSC/update_utcpole_CC.sh
/ecs/formal/TOOLKIT/src/CSC/update_utcpole.sh
/ecs/formal/TOOLKIT/src/CSC/PGS_CSC_UT1_update.c
/ecs/formal/TOOLKIT/src/PC/makefile
/ecs/formal/TOOLKIT/src/CUC/ODL/wrtlabel.c
/ecs/formal/TOOLKIT/src/CUC/ODL/odldef.h
/ecs/formal/TOOLKIT/src/MET/tools/PGS_MET_GetSetAttr.c
/ecs/formal/TOOLKIT/src/MET/tools/PGS_MET_SetAttrF.c
/ecs/formal/TOOLKIT/src/MET/tools/PGS_MET_SetAttr.c
/ecs/formal/TOOLKIT/src/MET/tools/PGS_MET_Write.c
/ecs/formal/TOOLKIT/message/PGS_MET_13.t

Section 6.2 provides a summary of NCRs which have been fixed and released as a patch or several patches. To obtain a detailed description of the NCRs, the DDTS system can be accessed from the following WEB page:

http://newsroom.gsfc.nasa.gov/ddts/

6.2 Non-Conformance Reports

The following Toolkit NCRs have been fixed and are available to the Science Community. They are listed in numerical order by severity.

6.2.1 Affected Version 2: Drop 2.01

NCR ID: **ECSed10099**

Title: Change the toolkit status return to 'warning' rather than 'error'

Severity: 3

Problem: Please change the toolkit status return to 'warning' rather than 'error' as in the description below. put in an NCR and th fix into clearcase.

The MET tool PGS_MET_Write() enforced the writing of all metadata attributes in the Metadata Configuration File (MCF) that have a data location of "PGE" and whose mandatory parameter was set to TRUE.

The mandatory parameter is actually irrelevant in this case. This is not a proper test of whether or not metadata should be written out. The PGE should set values for ALL metadata contained in the MCF with a data location of "PGE". The MET tools should return a warning if ANY metadata parameter specified in the MCF with a data location of "PGE" has not been set by the PGE.

Added code to generate a return warning message for any metadata parameter specified in the MCF with a data location of "PGE" has not been set by the PGE

Resolution: Changed the source code back to the TK5.2 April version.

6.2.2 Affected Version 2: Drop 3

NCR ID: **ECSed09862**

Title: Debug version of SDP Toolkit is not on GDAAC Drop 1 system

Severity: 2

Description: Need debug version of SDP Toolkit in order to perform SSI&T at GDAAC.

Resolution: The ability to build debug capable versions of the Toolkit was added with Toolkit 5.2 (delivered in April 1997), which is in Drop 1.

Note that with Toolkit 5.2.1 (delivered in October 1997), which will be included in Drop 2, HDF and HDF-EOS will also be built in debug mode if the -dbug flag is added to the INSTALL.

NCR ID: ECSed10387

Title : DEM tools:Using bilinear interp. in GetRegion & GetPoint causes mem leak

Severity: 2

Description: When bilinear interpolation is used to interpolate fill points, the memory assignment

extractedRegion[subgridTemp] =

calloc(1, sizeof(PGSt_DEM_RegionRecord))

in function PGS_DEM_ExtentRegion.c causes memeory leak which is substantial when PGS_DEM_GetRegion is called to extract a region.

Resolution: Before callocing space for extractedRegion[subgridTemp] it is checked to see whether it has been calloced before or not.

```
if(extractedRegion[subgridTemp] == NULL)
{
extractedRegion[subgridTemp] =
calloc(1, sizeof(PGSt_DEM_RegionRecord));
}
```

This avoids the memory leak. This change just prevents the memory leak and has no effect on user callable functions.

NCR ID: **ECSed09188**

Title: Version 5.1 of SDP Toolkit is not available from the ftp site.

Severity: 3

Problem: Previous versions of the toolkit should be available from the ftp site.

Resolution: This is not a bug. Version 5.1 is more than two versions behind the current version we are using for Toolkit.

The Toolkit software available on the EDHS ftp site is intended for SCF users of the software. The SCF Toolkit is available there and has been for three years

Pre Release B Testbed DAACs obtain all software, including the Toolkit, via ECS Configuration Management. All old versions of the Toolkit are under CM control at the EDF in Landover. This is the proper channel for obtaining software.

NCR ID: **ECSed09391**

Title: Several CERES PGEs need to set more than 744 values for InputPointer

Severity: 3

Description: Several CERES PGEs will need to set more than 744 values for InputPointer (i.e., a UR assigned by DSS), which has a maximum length of 255 characters. There are other PGEs that also employ large numbers of input data files.

This refers to user log number 970928-01 and is related to NCR #ECSed10390. In an earlier test done by Carol Tsai for Barbara Weyman of MISR, she found that the toolkit could handle 45 values of InputPointer with a length of 255. I requested Carol to do some additional testing with larger values of NUM-VAL, and her results are attached.

Resolution:

1. Added code to check if the length of the character string to be set up for the attribute value is greater than the PGSd_MET_MAX_STRING_SET_L (255),a constant that defined for the maximun amount of the length of the character string. A error status message will be generated if the length is over the the maximun maximun amount of 255.
2. Added code to check if the element size of the array of the character string to be set up for the attribute value is greater than the PGSd_MET_MAX_ARRAY_ELEMENT_SIZE (1000), a constant that defined for the maximun amount of the size of the array element. A error status message will be generated if the length is over the maximun amount of 1000.
3. Changed the constant value that defined in the header file odldef.h for the ODLMAXSTMT, a constant variable declared as the maximum number of character allowed in an ODL statement from 24000 to 2400000.

4. Changed the constant value that defined in the function wrtlabel() for the MAXLABLINE, a constant variable declared as the maximum number of characters in a label line from 255 to 300.

NCR ID: **ECSed09638**

Title: Setting String Array in Fortran

Severity: 3

Description: We are trying to set a string array of values using PGS_MET_SetAttr_s (FORTRAN) and we find that only the first element gets set, the rest are all null. Is there something special we are neglecting for fortran?

Resolution: Added code to create a temporal string point to hold each element of the voNCR IDdata that is to be set up for the metadata parameter. The amount of the memory allocated for this string is one byte greater than the strLength, the string length if the voNCR IDbuffer is character string, in order to prevent from the problem of a NULL, that supposedly should point to the last location of individual string when converting the Fortran string to the C string will point to the next array string if the size of the array defined by the user in the declaration section is exactly the length of the string

NCR ID: **ECSed09822**

Title: A PCF never closes after openning in function PGS_MET_GetConfigByLabel

Severity: 3

Problem: I work on the CERES project and have recently incorporated the useage of Metadata into the production code for the Clouds Subsystem. I seem to have run into a problem with the number of files opened by the Toolkit, specifically the function PGS_MET_GetConfigData. I am programming in F90 using the SGI f90 compiler version 7.1

With each call to PGS_MET_GetConfigData, which calls PGS_MET_GetConfigByLabel, the number of unit numbers used by the executable increases by one. It appears that PGS_MET_GetConfigByLabel opens the PCSfile each time the function is called. This in and of itself is not a problem, the problem is that PGS_MET_GetConfigByLabel does not close the PCSfile unless there is an error reading the PCSfile.

In CERES processing, much of our metadata functionality is contained in a general wrapper to hide many of the metadata details from the end user. One such detail is the retrieval of 11 fields from the PCSfile to be stored in the metadata. The wrapper, which is called for each output product, manages this retrieval of fields from the PCSfile using the function PGS_MET_GetConfigData. With a small number of output products, this arrangement isn't a problem, but in CERES Clouds processing, we sometimes have as many as 7 output products. With approximately 30 input files and 7*11 calls to PGS_MET_GetConfigData, we quickly exceed the 100 open files limit with the following error:

Assertion failed: fd <= FOPEN_MAX, file ../../libI77/fio_direct_io.c, line 230

I have tried to enlarge the number of open files allowed to me by using the UNIX limit and unlimit commands, but I continue to exhibit this failure. The CERES Instrument subsystem has encountered this problem but were able to use the UNIX unlimit command to enlarge the number of open files allowed to them. I suspect that this is because they are using Ada and C exclusivley to perform their I/O rather than SGI f90 direct access I/O.

The failure to increase the open files limit may be tied to the definition of FOPEN_MAX defined in stdio.h and the implementation of the SGI f90 direct access I/O in C. stdio.h is possibly included in the C module mentioned in the Assertion failed statement above, fio_direct_io.c. The setting of this hard limit at compile time may cause the executable to ignore any soft limits set at run-time.

Clearly the failure by PGS_MET_GetConfigByLabel to close the PCSfile is significant and will likely pose problems to other users. While the use of the UNIX unlimit command is a good 'work around', it doesn't work for everyone and doesn't fix the underlying problem. Until this problem is addressed, I can not run the portion of my code that produces the variable number of output products.

A problem was encountered when trying to run a 24-hour test at the DAAC through the launch-ready Instrument Subsystem. With the added help of Tim and Kevin, the problem was tracked down to the ToolKit routine PGS_MET_GetConfigByLabel.c, which opens up the PCF for every Metadata parameter, but never closes the file when it is successful. Sharon copied the ToolKit routines PGS_MET_GetConfigByLabel.c and PGS_MET_GetConfigData.c to the instrument area and renamed PGS_MET_GetConfigData.c to make sure we were using our version of the routine and not the ToolKit's version. Sharon made the change in the PGS_MET_GetConfigByLabel.c to close the PCF file after a successful return. We then ran 24-hours of data from the 30-day test (read data from the /DAAC area on thunder) and had a successful run without problems.

Before this test we ran the same test without the changes to the ToolKit routine and ended up in an infinite loop within the ToolKit, where we got messages stating that the ToolKit could not open it's own message file (PGS_9), because it dNCR IDnot exist, but it existed up to the point were we had the problem. The problem appears to stem from too many open files. Next we ran a test where we took out the calls to metadata and we had a successful run of the entire 24-hour test. Then the above test was run with the changes and again success.

The question now becomes, do we deliver our version of the ToolKit code and new make script, so that testing can continue at the DAAC and we are ready for launch, or do we have the DAAC and SCF make the change to the PGS_MET_GetConfigByLabel.c in the ToolKit code and recompile all versions of the ToolKit, or do we get the ToolKit folks to make the change?

In order to allow us to run without problems at the SCF, we have incorporated the new updates into our version of software (added updated code to our own system), but this does not help other subsystems who are having problems related to this also.

As a point of reference ToolKit 5.2.1 has the exact same code for this call, therefore the exact same problem. Tim has looked into the TK 5.2.1 code and no update was made in that code. I believe that the ToolKit folks felt that we would only be outputing one file per PGE and so leaving the file open was not a problem, but since SS1 creates up to 32 output files in any one run, you can see where the problem escalates very quickly. The file is left open for every metadata parameter that is looked for.

The Langley DAAC must have Subsystem 1.0 code that will run when we launch. It appears that they can run any one APNCR IDalone and all is well, but extensive tests have not been done there either, only 4 hours of data have been run at a time, so the problem may well jump up and bite us for 24 hours of science data, which creates the most output files.

We can deliver to CM the updated ToolKit routines and the new make script this next week if that is acceptable, as a temporary fix. That is not a course of action that corrects the problem in the long-term.

Resolution: Added code to close a PCF (Process Control file) that never closes after opening to retrieve attributes.

NCR ID: ECSed10115

Title: TOOLKIT: Sun pgs-dev-env.csh file has incorrect directories

Severity: 3

Problem: /usr/ecs/TS1/CUSTOOM/TOOLKIT/bin/sun5/pgs-dev-env.csh has incorrect setting for PGSHOME. Since the remaining env variables incorrect.ative to this one, the remaining env variables are also /data1/ecs/TS1/CUSTOM/TOOLKIT2": This directory does not exist. The correct setting should be: /data1/TS1/CUSTOM/TOOLKIT

Resolution: Apparently for drop 1 TS1 mode at the GSFC DAAC, the installation team simply tar'd up the files on the machines in the VATC, moved the files to GSFC and untar'd them onto the analogous machines. The Toolkit installation script had already been run, so that the Toolkit files were overwritten with the VATC versions.

This should NOT occur for drop 2 on, since ECS Assist is now being used to install the ECS system.

Two possible workarounds for drop 1:

1) rerun the Toolkit INSTALL script
2) edit the file to correct the line that's incorrect

NCR ID: **ECSed10160**

Title: Bug in PGS_MET_SearchAttr

Severity: 3

Description: The message below is from the Toolkit User log #971128-01:

Resent-From: "PGS Toolkit" <pgstlkit@eos.hitc.com>

Resent-Date: Tue, 25 Nov 1997 14:09:08 -0500

X-Mailer: Z-Mail (3.2.0 06sep94)

Resent-To: ctsai@eos.hitc.com

X-Mailer: ELM [version 2.4 PL25 PGP3 *ALPHA*]

The B0 data model says the generic QualityFlagExplanation is of type varstring(255), which is also what ECS's latest slides that we have say for AutomaticQualityFlagExplanation. Therefore if the toolkit cant handle an attribute with more than 80 chars it's a bug. Is there a prize for the developer who finds the most bugs?

Resolution:

1. Changed the size of the array elements from 80 to be PGSd_MET_MAX_STRING_SET_L (255) for variable tempSearchString, a character string declared to hold the attribute value that copied from a character pointer used to place value in voNCR IDbuffer, declared in function PGS_MET_SearchAttr().
2. Changed the size of the array elements from 80 to be PGSd_MET_NAME_L(100) for the input parameter attrName, a character string that defined to hold the attribute name string, in the function PGS_MET_SearchAttr() in order to make consistent with the input parameter defined in the calling function PGS_MET_GetSetAttr()
3. Changed the memory size that defined for the variable outSearchString, a character string pointer, to allocate the memory from heap in 80 to be PGSd_MET_MAX_STRING_SET_L(255)

NCR ID: **ECSed10240**

Title: Cut usable life of leapseconds and UT1 data files to 83 days

Severity: 3

Description: The Naval Observatory has informed us that a new leap second can be announced on only 90 days notice, and they cannot guarantee better than 1 week to get it into their data files on Earth rotation. Thereore, to protect users against processing with wrong Earth rotation data, we have to require Toolkit files be up to date within 83 days. we will fix our software to not work past 83 days of the last update

Resolution: The variable MAX_PERIOD in the file /ecs/formal/TOOLKIT/src/TD/PGS_TD_LeapSec.c has been changed from 180.0 to 83.0. This determines the maximum number of days past the last file update that the last entry in the leap-second file is considered to be valNCR IDfor. See "Problem".

NCR ID: **ECSed10303**

Title: TSDP TOOLKIT PROBLEM

Severity: 3

Description: I am putting a piece of code together for the MODIS land group and am having problems with the function PGS_MET_Write(). In particular, the difficulty arises when I try to write metadata for an ascii file….

Problem #1: The call to PGS_MET_WRITE interferes with the strtok() call. As a result, the second call to strtok incorrectly returns NULL. The strtok call works correctly if the PGS_MET_Write line is commented out. This seems to be a bug in the SDP toolkit.

Problem#2: I cannot figure out how to get the PCF interface for writing metadata to ascii files to work properly when writing metadata for more than one file. Using the syntax:

10255|ECS METADATA|290500:1

I can get the metadata to be written for any version number of file 290500, but cannot get the toolkit to automatically increment the version number for the succeeding files. I assume that I just don't know how to do it, but it doesn't seem to be listed in the latest version of the SDP documentation, either. How can this be accomplished?

Resolution:

1. Fixed code of replacing the C library function strtok used to break the string into a sequence of tokens with the C standard I/O function sscanf used to read characters, interpret them according to a format, and store the results in its argument/argumentsthe
2. Removed all the status checking codes followed after calling the function WriteLabel. The function WriteLabel is a avoNCR IDfunction, set up the status checking code will cause the memory problem of attempting to read from uninitialized memory
3. Changed the character string "PGS_MET_LoadAggregate", the second parameter passed into the function PGS_MET_ErrorMsg, to funcName declared for character "PGS_MET_Write"

NCR ID: **ECSed10390**

Title: It will core dump if the entry is different between MCF and input files

Severity: 3

Description: This is Toolkit user support log number 970928-02:

Status: I would like a clarification on using the toolkit to fill in the InputPointer parameters in the MCF file when writing to an HDF file.

If you put some number like 13 as the expected number of values in the MCF file for a product, and then only use 11 of these when actually writing it out, what happens? I thought I saw something at one time about putting the last value a null value or something like that, but I can't find anything like that in appendix J of the toolkit guide now.

GROUP = InputGranule

OBJECT = InputPointer

Data_Location = "PGE"

Type = "String"

NUM_VAL = 13

MANDATORY = "TRUE"

END_OBJECT = InputPointer

This is what the MCF will say. There may not be that many input files. What happens if you don't have all 13 entries?

Resolution: Modified the original code that assigned a NULL character to the next element whenever the loopCount is not equal to the mdNumOfVal to be the code that will assign a NULL character to the next element of the array only in the following conditions:

1. The variable loopCount declared as a index to count the exact number of elements of attribute values defined by users when calling the function PGS_MET_SetAttr() to set values for the alttribute, is equal to the variable, mdNumOfVal declared as a integer number for the NUM_VAL defined in the MCF (Metadata Configuration File) to be the expected maximun number of values that users can put the attribute.
2. The value of current element of array is not equal to the NULL.

NCR ID: **ECSed10378**

Title: DEM tools:Memory leak in PGS_DEM_Subset.c associated with initializeInfo

Severity: 4

Description: After I ran purify on DEM drivers I noticed that in function PGS_DEM_Subset memory leaks When more than 1 layer is assigned to layerlist. This is not the case when numer of layers is 1.

Resolution: In function PGS_DEM_Subset.c the statement free(initializeInfo); was added at the end of each case entry for switch(initializeInfo -> subset). This change just avoids memory leak in this function and has no effect on user callable functions.

NCR ID: **ECSed09986**

Title: In DEM tools Needs to fix SMF error mssages that return wrong function n

Severity: 5

Description: Some SMF error messages in PGS_DEM_OrderIndicesSumDeg.c and PGS_DEM_OrderIndicesSumDeg.c have not correct function name.

Resolution: In the function PGS_DEM_OrderIndicesSumDeg.c all occurances of PGS_DEM_OrderIndicesSumPix and PGS_DEM_OrderIndicesPix was changed to PGS_DEM_OrderIndicesSumDeg In the function PGS_DEM_OrderIndicesSumPix.c all occurances of PGS_DEM_OrderIndicesPix was changed to PGS_DEM_OrderIndicesSumPix

7. Non-Conformance Status

7.1 Patch Releases for Toolkit 5.2.1

7.1.1 Installed Changes

Addendum B addresses modifications to two problems found in the Version 2 Toolkit 5.2.1 software. The problems as defined by CCR 98-0074 are:

- Aster memory leak causes PGE to fail
- reading inventory metadata from ascii .met and archive met from HDF

Files changed:

- PGS_MET_SearchAttr.c
- PGS_MET_GetPCAttr.c

To verify that the files received are the correct version, check the file prolog section (BEGIN_FILE_PROLOG) for an entry dated 22-Dec-1997. The entry identifies the NCR and a description of the fix for this patch. Copies of the file prologs have been provided for quick reference.

PGS_MET_SearchAttr.c

```
BEGIN_FILE_PROLOG:

FILENAME:
      PGS_MET_SearchAttr.c

DESCRIPTION:
      The file contains PGS_MET_SearchAttr.
      This functiont is used by PGS_MET_GetSetAttr() to provide the more
     efficient capability for users can locate attributes within a long
      listing of Product Specific Metadata.

AUTHOR:
      Carol S. W. Tsai / Applied Reseach Corporation

HISTORY:
      09-Apr-1997    CSWT    Initial version
      03-Jun-1997    CSWT    Fixed code to handle case of a empty Group.
      26-NOV-1997    CSWT    Changed the size of the array elements from 80 to
                             be PGSd_MET_MAX_STRING_SET_L(255) for variable
                             tempSearchString, a character string declared to hold the
                             attribute value that copied from a character pointer used
                             to place value in void buffer
                             Changed the size of the array elements from 80 to be
                             PGSd_MET_NAME_L(100) for the input parameter attrName, a
                             character string that defined to hold the attribute name
                             string, in the function PGS_MET_SearchAttr() in order to
                             make consistent with the input parameter defined in the
                             calling function PGS_MET_GetSetAttr()
                             Changed  the memory size that defined for the variable
                             outSearchString, a character string pointer, to allocate
                             the memory from heap in 80 to be PGSd_MET_MAX_STRING_SET_L
```

(255)(This change is for bug ECSed10160 about bug in PGS_MET_SearchAttr)

22-Dec-1997 CSWT Added C library function free() to release previously allocated memory for variables outSearchString, a pointer declared to search value in void buffer, and tempvalue, a Value Node declared to copy the value of attribute (This change is for NCR ECSed10225 about a user (ASTER) is getting a core dump in _get_pcattrib)

END_FILE_PROLOG

PGS_MET_GetPCAttr.c

BEGIN_FILE_PROLOG:

FILENAME:
PGS_MET_GetPCAttr

DESCRIPTION:
Retrieves parameter values from the PCF table which are either located as HDF attributes in defined product files or in separate ASCII files. ASCII files must be in flat ODL format.

AUTHOR:
Alward N. Siyyid/ EOSL
Carol S. W. Tsai / Applied Reseach Corporation

HISTORY:
18-MAY-95 ANS Initial version
01-JUN-95 ANS Code inspection updates
13-July-95 ANS Improved Fortran example
24-July-95 ANS Added error handling in case parameters are not defined in hdf or ascii file
25-July-95 ANS Fixed ECSed01030
09-Aug-95 ANS Added function name to the C synopsis
11-MAR-96 ANS Updated for tk5+
08-Apr-97 CSWT Added code so that landsat7 files and the different groups in an ascii file can be read. Changed code to return a different status code for "Bad ODL" and "Praameter Not Set"
14-Apr-97 CSWT Added code for reading Node value that is the type of datetime in Landsat7 metadata

30-May-97 CSWT Changed code to enable the user to retrieve the container attribute value from an ASCII Metadata file
15-Jun-97 CSWT Added code enable the datetime data that is not in the type of string but in the type of UTC DATETIME format without double quotes surrounding it can be retreived from the HDF metadat file or non-HDF metadata file.
07-Aug-97 CSWT Dued to the Archive metadata was not written to the ASCII metadata file .met that was generated when the user write the metadata attaching to the HDF file. Added code to enable the user to retrieve the Inventory metadata from the ASCII metadata file, .met, whereas retrieve the Archive metadata from the HDF file even the given input file is an ASCII metadata file .met(This changing is for NCR ECSed07758 about PGEs need to get metadata from HDF files in B.0)
01-Oct-97 CSWT Modified the code that set hdfattrnameflag to be PGS_TRUE if

the HDF attribuet name is equal to productmetadata.X or
archivemetadata.X (X=0...n) to set hdfattrnameflag to be
PGS_TRUE if the HDF attribuet name is equal to coremetadata.X
(x=0...n) (This changing is for NCR ECSed09301 about change
the Flag set up for archive HDF attribute to inventory)
02-Oct-97 CSWT Fixed Bug ECSed09222 about a defect in retrieving the Attribute
of Date and Time values
18-Oct-97 CSWT Changed the variable zone_hours, Zone hours from GMT (-12 - +12),
that defined as a data type of long to be the data type of short
in order to prevent a core dump problem on sgi old 32 bit and
sgi new 32 bit from executing the MET TestDriver program to
retrieve the attribute value with the data type of DateTime
22-Dec-97 CSWT Added C library function free() to release previously allocated
memory for variable date_time_Ptr, a ODLDate struct pointer
declared to hold date and time values (This change is for NCR
ECSed10255 about a user (ASTER) is getting a core dump in
_get_pcattrib)

END_FILE_PROLOG

7.2 Non-Conformance Reports

This section provides a summary of the NCR which has been fixed and released as a patch. The following Toolkit NCR has been fixed and is available to the Science Community.

7.2.1 Affected Version 2: Drop 3.02

NCR ID:	**ECSed10225**
Title:	a user (ASTER) is getting a core dump in _get_pcattrib
Severity:	2
Problem:	This problem is related to user log # 971234-01, December 22, 1997 pgstlkit account: Bjorn Eng, a user (ASTER) is getting a core dump in _get_pcattrib. He reads 50 attributes, then the filename he is reading from seems to get truncated. Then he gets core dump. This sounds like it could be a memory leak. This came from information provided by Larry Klein on December 1, 1997
Resolution:	1: Added C library function free() to release previously allocated memory for variables outSearchString, a pointer declared to search value in void buffer, and tempvalue, a Value Node declared to copy the value of attribute on function PGS_MET_Search(). 2: Added C library function free() to release previously allocated memory for variable date_time_Ptr, a ODLDate struct pointer declared to hold date and time values on function PGS_MET_GetPCAttr() Patch-Note: This fix was also patched back to Drop 3.02.

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Appendix A. Build/Installation Instructions

Build/installation instructions for Release B.0 Toolkit 5.2.1 are located in Section 5 of the Release B.0 SCF Toolkit Users Guide (333-CD-004-001), and the README file available with the Toolkit for delivery.

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Appendix B. Special Operating Instructions

The test drivers are provided "AS IS" without warranty of any kind. They are provided for example purposes only. The following disclaimer applies to the README files provided with the Test Drivers. These *readme files have not been verified. They do, however, contain valid and useful information concerning the setting of environment variables and compile instructions. However, should there be any errors or discrepancies between the instructions contained in the *README files and the Users Guide, the Users Guide should take precedence.

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Appendix C. System Limitations

None.

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Appendix D. User Feedback Procedures

Please refer to the Release B.0 SCF Toolkit Users Guide for a description of user feedback procedures.

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Appendix E. Public Software Disclaimer Notice

This package, i.e., cfortran.h, and the cfortran.h example programs are property of the author who reserves all rights. This package and the code it produces may be freely distributed without fees, subject to the following restrictions:

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Appendix F. Test Baseline Configuration

Please refer to the Release B.0 SCF Toolkit Users Guide for a description of the Test Baseline Configuration.

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Abbreviations and Acronyms

A.A.	Astronomical Almanac
AA	Ancillary Data Access
AIRS	Atmospheric Infrared Sounder
API	Application Program Interface
APID	Application Process Identifier
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
BNF	Bachus-Nauer Form
CBP	Celestial Body Position
CCR	Configuration Change Request
CCSDS	Consultative Committee on Space Data Systems
CDRL	Contract Deliverable Requirements List
CERES	Clouds and Earth Radiant Energy System
COTS	Commercial off-the-shelf Software
CSMS	Communications and Systems Management Segment (ECS)
CRC	Cyclic Redundancy Code
CSC	Coordinate System Conversion
CUC	Constant and Unit Conversions
DAAC	Distributed Active Archive Center
DCE	Distributed Computing Environment
DCN	Document Change Notice
DCW	Digital Chart World
DDF	Data Distribution Facility
DEM	Digital Elevation Model
DDTs	Distributed Defect Tracking system
DPFT	Data Processing Focus Team
DTM	Digital Terrain Model
ECI	Earth Centered Inertial
ECR	Earth Centered Rotating

ECS	EOSDIS Core System
EDHS	ECS Data Handling System
EDOS	EOS Data and Operations System
EOS	Earth Observing System
EOSAM	EOS AM Project (morning spacecraft series)
EOSDIS	EOS Data and Information System
EOSPM	EOS PM Project (afternoon spacecraft series)
EPH	Ephemeris Data Access
ESDIS	Earth Science Data and Information System
ET	Ephemeris Tool
FDF	Flight Dynamics Facility
FOV	Field-of-View
ftp	file transfer protocol
GAST	Greenwich Apparent Sidereal Time
GCT	Geo-Coordinate Transformation
GMST	Greenwich Mean Sidereal Time
GPS	Global Positioning System
GSFC	Goddard Space Flight Center
HAIS	Hughes Applied Information Systems
HDF	Hierarchical Data Format
HITC	Hughes Information Technology Company
http	hypertext transport protocol
I&T	Integration & Test
I/O	Input/Output
IEEE	Institute of Electrical and Electronic Engineers
IMS	Information Management System (ECS)
IWG	Investigator Working Group
JPL	Jet Propulsion Laboratory
LaRC	Langley Reseaarch Center
M&O	Maintaince and Operation
MCF	Metada Configuration File

MDUE	Missing Data Unit Entry
MEM	Memory Management
MET	Metadata
MODIS	Moderate-Resolution Imaging Spectroradiometer
MSFC	Marshall Space Flight Center
NASA	National Aeronautics and Space Administration
NCR	Nonconformance Report
NCSA	National Center for Supercomputer Applications
netCDF	network Common Data Format
NMC	National Meteorological Center
PACOR	Packet Processor
PC	Process Control
PGE	Product Generation Executive
PCF	Process Control File
PDS	Production Data Set
PDPS	Planning & Data Production System
PCF	Process Control File
PDR	Preliminary Design Review
PGE	Product Generation Executive (formerly Product Generation Executable)
PGS	Product Generation System (ECS)
PGSTK	Product Generation System Toolkit
POSIX	Portable Operating System Interface for Computer Environments
QA	Quality Assurance
QAC	Quality and Accounting Capsule
RDBMS	Relation Data Base Management System
RPC	Remote Procedure Calls
RRDB	Recommended Requirements Database
SCF	Science Computing Facility
SDP	Science Data Production
SES	Scheduling and Execution Subsystem
SDPS	Science Data Processing Segment

SDPF	Science Data Processing Facility
SGI	Silicon Graphics International
smf	Collection of utilities and library routines used for generating SMFs and manipulating SMF-defined status values and messages
SMF	Status Message File
SPSO	Science Processing Support Office
SSM/I	Special Sensor for Microwave Imaging
TAI	International Atomic Time
TBD	To Be Determined
TD	Time Date Conversion
TDB	Barycentric Dynamical Time
TDRSS	Tracking and Data Relay Satellite System
TDT	Terrestrial Dynamical Time
TLCF	Team Leader Computing Facility
TRMM	Tropical Rainfall Measuring Mission (joint US - Japan)
TSS	(TDRSS) Service Session
UARS	Upper Atmosphere Research Satellite
URL	Universal Research Locator
US	United States
USNO	U.S. Naval Observatory
UT	Universal Time
UTC	Universal Coordinated Time
UTCF	Universal Time Correlation Factor
UTM	Universal Transverse Mercator
VCDU	Virtual Channel Data Unit
VDD	Version Description Document
VPF	Vector Product Format
WWW	World Wide Web